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Stagnant Extraction? The Politics of Time and Space in the Tanzanian Hydrocarbon Sector

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Declaration

I declare that this thesis has been composed by myself and has not been submitted for any other degree or professional qualification. Except where stated by reference or acknowledgement, the work presented is entirely my own.

Chapter seven of this thesis, titled 'The Politics of the Temporary: Local Content in the East African Crude Oil Pipeline' has been previously published in the journal *Extractive Industries and Society* under the title 'The Politics of the Temporary: Tanzanian Local Content in the East African Crude Oil Pipeline'. The chapter has been slightly altered for this thesis.

Chapter four of this thesis, titled 'Piping Away Development: The Material Evolution of Resource Nationalism in Mtwara', has been submitted to the *Journal of Southern African Studies* under the same title. The work has been reviewed, but the updated article with corrections has not yet been submitted for review at the time of writing.

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Lay Summary

In the early 2010s, discoveries of offshore gas reserves generated considerable excitement both for international oil companies, national politicians, and local populations in Tanzania. The promises of hydrocarbon wealth changed the imagined future of Tanzania's economic development and was further buoyed with planned infrastructure projects and political promises to the nation. In the decade since these offshore discoveries, the movement from exploration to extraction has stalled, with declining prices and new laws, dubbed 'resource nationalism', presenting Tanzania as a less attractive investment destination than before.

Utilising one-on-one interviews, group interviews and documentary evidence, this thesis presents a study on the politics of time in Tanzania. It focuses on the differing and changing perceptions of time by the Tanzanian government, oil corporations, Tanzanian nationals, and businesses. It explores the different forms of time that are present in the hydrocarbon sector, and argues that these temporalities, combined with different actors' perceptions of time have created friction across the hydrocarbon sector and has been reflected geographically.

Such frictions have been between local communities and the national government, and the government and international oil companies. However, there have also been different perceptions within these different geographical scales. With these contrasting perceptions of time, and in particular, the future of the industry, there has been a variety of means where actors have sought to increase the control of time through the control of pace and urgency.

Current research, particularly in geography, has not explored time and temporality as a lens for research. With increasing state involvement in the extractives sector occurring across the African continent, this study presents a well-timed intervention to further the knowledge of the politics of extraction and present new avenues to do so.

Abstract

In the early 2010s, discoveries of offshore gas reserves in Tanzanian waters generated considerable anticipation both for international oil companies, national politicians, and local populations. The promises of hydrocarbon wealth changed the imagined futures of Tanzania with political suggestions that hydrocarbon extraction could catalyse economic development and was further buoyed with planned infrastructure projects worth billions of dollars. The introduction of the hydrocarbon sector to Tanzania changed perceptions of time and introduced the temporalities of extraction to the country. Since then, these promises and expectations have yet to come into fruition, with the offshore sector has yet to enter the extraction phase, and the infrastructure projects have yet to begin construction.

This thesis presents a study of the politics of time in the hydrocarbon sector in Tanzania. It focuses on the tensions generated by legislative changes, policy changes and planned infrastructures to present how different actors' perceptions of time, specifically around the future and pace of developments in the sector, have shaped frictions between stakeholders. Central to this is multiple and sometimes conflicting temporalities. This thesis argues that the introduction of the hydrocarbon sector has both created and exacerbated frictions in the perceptions of time for a variety of stakeholders at differing spatial levels. At the core of this has been the future, or more specifically, the competing imagined futures that the gas sector would have on Tanzania's economic development. These frictions have been dependent on a variety of factors, ranging from the geographical, to the material and imagined.

Theoretically, this thesis proposes a greater focus, understanding and clarity on the temporalities of extraction to better understand modern extractive phenomena within the social sciences. This is particularly true within multiple African states, whereby there are growing expectations of resource-based development and increased state intervention in the extractives sector.

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Finally, I would like to thank my fiancé, Sophie, who had been with me on this journey from its inception with the first draft of a research proposal to now. There is not a lot of people that would put up with a partner doing a thesis, let alone one that included fieldwork thousands of miles away, and for that, I am forever thankful. Her endless love, companionship and an inhuman amount of patience made this thesis possible. This thesis is dedicated to her, as just one small expression of my love and thanks.

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List of Acronyms

AGIP	Azienda Generale Italiana Petroli
ATOGS	Association of Tanzania Oil and Gas Service Providers
bbl	Barrel of Oil
CCM	Chama Cha Mapinduzi
COSTECH	Tanzania Commission for Science and Technology
CUF	Civic United Front
DFID	Department for International Development
EACOP	East African Crude Oil Pipeline
EIA	Energy Information Administration (US)
ESIA	Environmental Social Impact Assessment
EWURA	Energy and Water Utilities Regulatory Authority
FDI	Foreign Direct Investment
FEED	Front End Engineering Design
FID	Final Investment Decision
FLNG	Floating Liquefied Natural Gas
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoT	Government of Tanzania

GoU	Government of Uganda
HGA	Host Government Agreement
IEA	International Energy Agency
IFC	International Finance Corporation
IGA	Intergovernmental Agreement
IMF	International Monetary Fund
IOC	International Oil Company
LNG	Liquefied Natural Gas
MCF	Million cubic feet
MMBTU	Million British Thermal Units
MNC	Multinational Corporation
MW	Megawatt
MWh	Megawatt hour
NGO	Non-Governmental Organisation
NOC	National Oil Company
NORAD	Norwegian Agency for Development Cooperation
OBM	Obsolescing Bargain Model
PPF	Parastatal Pensions Fund
PSA	Production Sharing Agreement
PURA	Petroleum Upstream Regulatory Authority
SAPs	Structural Adjustment Programmes
SLB	Schlumberger
SME	Small and Medium Enterprises
STP	São Tomé and Príncipe
TANESCO	Tanzania Electric Supply Company
TCF	Trillion Cubic Feet
TPDC	Tanzania Petroleum Development Corporation
TPSF	Tanzania Private Sector Foundation
UN	United Nations
VETA	Vocational Education and Training Authority

Chapter I: Introduction

1 East Africa: From 'Sleepy Backwater' to 'Energy Frontier'

Historically a region that has garnered little to no interest from international oil companies (IOCs), in the past twenty years, the East African region has seen a rise, and a fall, of hydrocarbon investment and exploration. The discovery of commercial amounts of oil in Lake Albert in Uganda in 2006, combined with rising commodity prices, changed oil industry perceptions of the whole East African region from what the international consultancy Deloitte derisively referred to as a 'sleepy backwater' (Deloitte, 2013), to an 'energy frontier' (Time, 2010; Forbes, 2015). East Africa was seen, as market research firm Visiongain put it, as 'fast becoming one of the world's most interesting oil and gas hotspots' that would attract 'tens of billions of dollars of investment over the next decade' (Visiongain, 2015). This was reflected with growing exploration by some of the world's largest IOCs, including Total, Shell, and ExxonMobil. Alongside discoveries in Uganda, further discoveries of oil in Kenya, and natural gas in Tanzania and Mozambique (Figure 1), cemented the idea among investors that

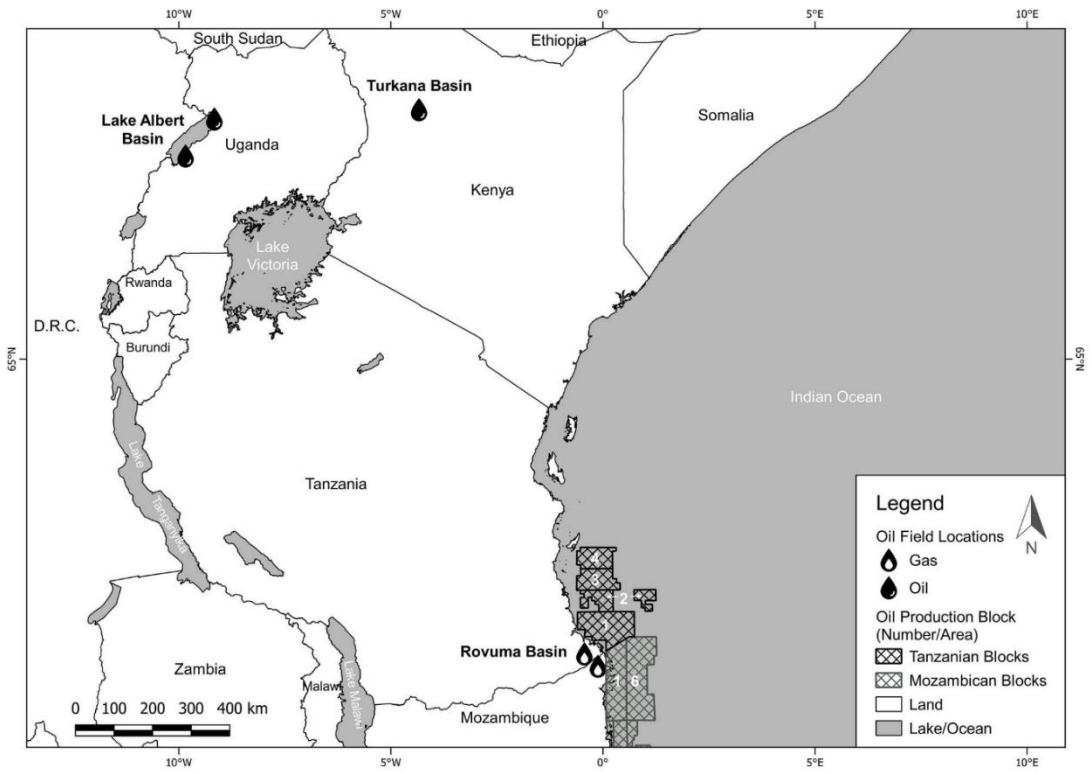

Figure 1: Map of East Africa with Proven Hydrocarbon Deposits

East Africa was 'the last real high-potential area in the world that hasn't been fully explored' (Time, 2010). This problematic and neo-colonial discourse from investors and market analysts also changed a perception of the future for the region; gone from being forgotten by IOCs, East Africa was now regarded to have 'potential' on the global energy map, and a future of hydrocarbon exploration and exploitation had opened, and with it, discussions around potential economic impacts the industry may have.

Political leaders followed suit over the predicted transformative effects hydrocarbons would bring; Uganda's president, Yoweri Museveni, described the discovery of oil as a 'new ray of hope to Uganda's long-term vision of transforming itself from a low income to a medium income and self-sustaining economy' (Museveni, 2011), while Tanzania's president at the time, Jakaya Kikwete claimed that gas discoveries are 'leading the way in Tanzania's economic transformation' (Kikwete, 2014). Opposition MP's, such as Tanzania's Zitto Kabawe, on the other hand, warned of an alternative future where the 'resource curse' could take root (The Citizen, 2012). NGO's shared similar sentiment in preparing the state against the resource curse and its potentially detrimental effects on the democratic process, transparency, and the economy (World Resources Institute, 2010). Hydrocarbon potential, not yet extracted, presented alternate futures, some of which were anticipated to allow for an increased pace towards economic transformation.

Hydrocarbons are economically and politically transformative. These transformations often have negative effects from a human development and environmental perspective and have been explored under the 'resource curse' theory. Economically, hydrocarbon revenues can make a state vulnerable to price shocks, the Dutch disease, and enclave development (Auty, 1993; Ackah-Baidoo, 2012). In terms of political transformation, Ross highlights the fact that oil uniquely shapes governments by the way of three mechanisms: a rentier, repression and an (anti) modernisation effect (Ross, 2011). In essence, Ross argues that oil obstructs democracy and contracts non-oil parts of the economy. On a more local level, Watts argues that the oil sector has considerable transformative effects on the politics of local communities in the Niger delta, with violent results (Watts, 2004). These transformative effects themselves have influenced prospective oil states (Weszkalnys, 2011). With Tanzania being a recent hydrocarbon producer, the question of whether the country will suffer the same fate as 'resource cursed' nations such as Nigeria, Angola, and the Democratic Republic of the Congo remains.

Despite these discoveries and political promises of hydrocarbon-based development, progression from the exploration phase to the production phase of the extractive lifecycle has stalled across the East African nations; only Kenya has started to extract hydrocarbons for export, albeit in limited amounts (Petroleum Economist, 2019b). In Tanzania, market commentators have been quick to point to both the suppressed commodity prices post 2014, which have made projects economically difficult (Manley *et al,* 2015), and the government's increased fiscal demands for the sector (Financial Times, 2018b). However, while these pro-market views do carry some weight on the economics of extraction, a greater understanding of the politics behind such changes can enhance the knowledge behind the hydrocarbon sector. While domestic issues have been explored, a greater understanding of how time and temporality interacts with the politics of extraction can expand understanding behind some of the perceived slow progress of the sector in Tanzania.

The above statements revolve around anticipations and projections of the future, and how the introduction of oil and gas exploration and export will change the economies of their respective countries. It also denotes the pace of change that would occur from hydrocarbons. Central to this is the changing perception of time. Time and temporality are ever-present factors of life, but with the exception of anthropology (e.g., Munn, 1992; Bear, 2016), have rarely been analysed in-depth within wider social science disciplines. As will be shown later in this introduction and the literature review, this has also been the case for extractives literature.

This thesis will focus on the politics of temporality and time in the Tanzanian hydrocarbon sector. In terms of exploration and production, Tanzania has been both on the forefront of gas discoveries and an example of the delays experienced in the sector. The Tanzanian portion of the Ruvuma basin contains an estimated reserve of 57 trillion cubic feet (tcf) (Petroleum Economist, 2020), which, if proven, would place the country in the top twenty countries in terms of gas reserves (EIA, 2020c).[1] Natural gas has become a growing part of the world's energy supply, in part due to technological advancements such as fracking, which has enabled wider exploration and exploitation, particularly in the US, and has a lower carbon output when compared to other fossil fuels; natural gas has less carbon dioxide emitted per million British thermal units (MMBTU) than either coal or oil, with emissions

[1] According to the EIA, the world rankings are for 'proven' gas reserves. While the total gas reserves have been announced by IOCs, at the time of writing, this has not been represented by EIA statistics and thus the 57tcf are not included in the EIA rankings.

weighed at 103.7kg per MMBTU for coal, compared to 53.1kg per MMBTU for natural gas (EIA, 2020d).[2]

Gas is a growing, and increasingly global, market (Bridge and Bradshaw, 2017). Tanzanian and Mozambiquan gas are geographically positioned to supply the East Asian market, which holds both the largest consumption of natural gas and the highest price for natural gas, and is projected to grow further (IEA, 2019a). However, the country has yet to progress to the export of hydrocarbons, exploration has dwindled since 2015. Furthermore, infrastructure required for export, such as the Liquefied Natural Gas (LNG) plant, which was originally planned to be completed in the early 2020s (East African, 2016b), has yet to progress beyond negotiations with the government and IOCs. Tanzania is also the planned point of export for Ugandan crude oil for the East African Crude Oil Pipeline (EACOP), which was originally predicted to be finished in 2020, has yet to begin construction (Observer, 2019a). These two infrastructure projects would bring in billions of dollars of foreign investment into the country and would facilitate Tanzania's entry into the global hydrocarbon economy.

Politics plays a considerable role in the lack of transition to production for Tanzanian gas, as well as the East African hydrocarbon sector as a whole (Patey, 2017). While the Mozambican gas sector has accelerated towards production, with the construction of an LNG plant underway,[3] the Tanzanian sector has seen little advancement since 2015. Coinciding with the growth of the sector in East Africa and Tanzania, there has been a growing rejection of neoliberal approaches to natural resource governance (Campbell, 2009; Childs, 2016; Haslam and Heidrich, 2016). In its stead has been a growth of policies that look to increase state involvement in extractive governance for greater involvement from domestic businesses and citizens, greater down and midstream linkages to the extractive industries, and greater resource revenues for states relative to multinational investors. This has been combined with a changing discourse that has tied natural resources to nationalistic rhetoric. These policy changes and increased rhetoric have been called 'resource nationalism' (Stevens, 2008; Koch and Perreault, 2019).

[2] It is worth noting that recent research suggests that natural gas, and in particularly gas from fracking, has been tied to methane emissions, another greenhouse gas that significantly contributes to climate change (Howarth, 2019; Hmiel *et al*, 2020).

[3] At the time of writing, the region in Mozambique which contains the gas fields, Cabo Delgado, is currently facing an Islamist insurgency (Financial Times, 2019b), which, alongside considerable human cost, could cause delays to the sector.

Policy analysts, observers, and academics in the fields of political geography, anthropology and political economy have noted that a greater state presence in the extractives sector has materialised as a reaction to the neoliberal policies brought in during the era of structural adjustment programmes (SAPs) (Haslam and Heidrich, 2016; Hickey *et al*, 2020). The neoliberal policies during SAP era were market-oriented; they involved reduced involvement of the state beyond obtaining taxes and royalties, and many firms were lured by financial incentives to create a 'business friendly' environment that inspires 'confidence' (Campbell, 2003a; 2003b). Furthermore, these tax codes tended to be generous as low commodity prices were the mainstay throughout the 1980s and 1990s and were ineffective in obtaining greater revenues when prices rose during the commodity boom of 2000-2014 (Katz-Lavigne, 2017).

Conversely, policies described as 'resource nationalist' in nature, can be described as greater state involvement in the sector beyond fiscal revenue generation (Childs, 2016), and include initiatives to increase domestic employment and supply-side participation (also known as local content – see Ovadia, 2016a; chapter seven of this thesis), generate greater domestic linkages to the extractives sector (e.g., Caramento, 2020) and, in some cases, nationalisations (Stevens, 2008). It is worth noting that these policies vary significantly from country to country and the maturity of the sector (e.g., Stevens, 2008; Andreasson, 2015; Wilson, 2015), and are often pursued through the redrawing of extractive resources legislation and licencing systems.

The Tanzanian government has enacted legislation that has been used to maximise resource revenues, ensure a greater degree of participation from Tanzanian businesses and workforce, and exert a greater degree of control over the extractives sector (e.g., Jacob and Pedersen, 2018; Poncian, 2019a). This has coincided with a discourse that has emphasized natural resources as a cornerstone of national economic development. Although this has been chiefly applied to the gold sector (Roder, 2019), the gas sector has also seen attempts at increased involvement by the Tanzanian state (Sørreime, 2019).

These developments go against the assumptions of pro-market theories about state intervention in the extractives sector, which have focused on the temporalities of extraction: Vernon (1971), in his influential obsolescing bargain model (OBM), argues that states intervene more in extractives when infrastructure has been established and the sector has matured, while Wilson (1987) argues that nationalisations and increase state intervention in the hydrocarbon sector occur during periods of high oil prices. Time is central to both

theories; the OBM model follows infrastructure lifecycles around the extractives sector to determine when a state is more likely to increase their involvement in the sector or nationalise it. The commodities cycle dominates Wilson's analysis, which suggests states are more likely to pass legislation to obtain greater revenues during times of high commodity prices.

In the Tanzanian case, neither is true; the infrastructure required for offshore extraction and export has yet to be built, and oil and gas prices have fallen from their heights of the commodity supercycle. Yet, Tanzania has pursued a resource nationalist path, both in terms of greater resource revenues and control over the sector, and as a social discourse for nation-building. These attempts have resulted in frictions across spatial scales. A greater explanation behind why it has done so is needed. As will be shown in the literature review of this thesis, literature on Tanzanian resource nationalism has excellently understood the political and policy dimensions of the policies and rhetoric of both Kikwete's and Magufuli's administrations (e.g., Jacob and Pedersen, 2018; Kinyondo and Huggins, 2019; Poncian, 2019a). These current explanations have not included the role of temporalities within their research, which is important because time and temporality are central to hydrocarbon extraction; commodity cycles dictate investment strategies and government revenues, and as mentioned above, the transformative effects of hydrocarbons led to changing plans and a differing imaginary of the future. Given the lack of inclusion of temporalities in human geography and political economy, this is unsurprising, however, as mentioned above, pro-market explanations of resource nationalism incorporate different forms of structures of times in their analysis. It is one of the goals of this thesis to better explain these temporalities in the Tanzanian context.

In discussing resource policy, geographers, political economists, and anthropologists have explored the geographical political economy of resource policies in a variety of different ways; one of the most heavily researched areas is space. Space has been hypothesised in an increasingly complex manner (Thrift, 2008), and this is true for research into the extractive industries (e.g., Ferguson, 2005; Watts, 2005). Space has been used as a primary unit of analysis to understand how resource policies, both neoliberal (e.g., Himley, 2008; Appel, 2012), and resource nationalist (e.g., Koch and Perreault, 2019; Laing, 2020a). While this has provided great insights into the different ways extractive companies and nations have utilised resource governance, from the neoliberal privatisation and subsequent enclosure (Ackah-Baidoo, 2012), to the reterritorialization for state oil companies to repurpose land for extractive use (Laing, 2020a), gaps have remained. One such factor that has limited

discussion in the literature has been exploring how time interacts with the geographical political economy of extractives.

Temporality is defined as 'the nature or structure of time, in terms of its objective existence, its subjective experience, or both, and particularly with respect to the relations among its dimensions (past, present, and future) and the way in which it passes' (Widder, 2010). While time is a continuous 'objective' part of life (i.e., an hour will remain an hour, regardless of human interference), the control of the way time passes, through timeframes such as extractive lifecycles, or the fallout of cyclical events such as 'boom and bust' of international markets can elicit different reactions from both the disruption of imagined futures and potential fallouts from such events.

These forms of temporalities of extraction elicit different perceptions of time, for example, shortening time horizons or an increased pace of development and change for the future, or alternatively, a desire to return to the past to a pre-extraction life. In essence, while time is continuous and linear for people and societies, multiple, and sometimes, contrasting temporalities are exhibited from different actors across the extractives sector. Politics and capital are central to this structuring and perception of time, through the range of actions they can inspire. In terms of the hydrocarbon sector, this can be seen with the promises of hydrocarbon wealth to benefit the nation and resulting increase in development projects, either directly from the state or from corporate social responsibility initiatives. These have often been ineffective (Auty, 1993; Frynas, 2005). In less economically developed states, accompanying the political promises of greater wealth has been warnings of the 'resource curse' (Weszkalnys, 2016).

Time has been underutilised not just within extractive literature but also within wider social science (May and Thrift, 2001). Temporality has only been utilised intermittently in human geography and political economy. As mentioned before, most of the scholarship employing the concept has been in social anthropology (e.g., Munn, 1992; Bear, 2016). Geography has rarely engaged with temporality, despite the fact that extraction is both a spatial and temporal practise. There are a few geographical exceptions (e.g., May and Thrift, 2001; Klinke, 2013), which will be explored in greater depth in the literature review.

Temporalities of the extractive sector command the actions of a variety of actors across different spatial scales; at the global scale, the cyclical nature of commodities markets (better known as the 'boom and bust' cycle), dominate IOC strategies, investment decisions, stock prices and shareholder demands (e.g., Bowman, 2018; Wiegink, 2018). The boom-and-bust

cycle dominates potential legislative changes at the national level, with governments both in the global north and south often looking to increase revenues and windfall taxes during periods of high commodity prices (Katz-Lavigne, 2017). This is combined with long term strategic goals of both IOCs and states, and how extracted resources are included in this (often) economic strategy. Alongside the boom-and-bust cycle, the lifecycles of extractive projects, either in the form of wells and mines, or midstream projects such as refineries, pipelines, or LNG projects, also have an influence on local and national political actors (Larkin, 2013). These are combined with perceptions of either successes or failures of the past, present or the future (e.g., Ferry and Limbert, 2008; Weszkalnys, 2016). Mixed perceptions of the future, actions spurred from hydrocarbon investments and infrastructures due to the temporalities of extraction, and the boom-and-bust cycle are central to this thesis.

2 Extraction in Tanzania: A Background

This thesis is based on research in Tanzania, with fieldwork in Dar es Salaam, Mtwara and Tanga. Tanzania has been on the forefront of committing to resource nationalist policies. To understand current events in the Tanzanian hydrocarbon sector, it is important to historically contextualise both Tanzanian nationalism and the Tanzanian's state's previous interactions with international capital, and how these have influenced discourse around the gas industry (Poncian, 2019b). When compared to West Africa, the East African region is geologically complex, and because of this, the region has historically been under-surveyed (Anderson and Browne, 2011). Additional difficulties hindered exploration and production of hydrocarbons throughout its postcolonial history, ranging from the geographical location from markets, lack of technology, unfriendly investment environment, technical difficulties in extraction and a desire from to discover oil rather than gas. This resulted in little activity in the Tanzanian hydrocarbon industry before the 2000s (Pedersen and Bofin, 2015).

While Tanzania has extracted minerals since the colonial era, the country lacks a sustained history of resource extraction, with the gold sector expanding in the late 1980s and 1990s (Elbra, 2016), and the gas sector expanding in the mid to late 2000s and 2010s. Rather than the history of extraction guiding recent developments in the sector, it is the historical connection to Nyerere and African socialism that have shaped recent developments in the sector. The influence of Nyerere, *Ujamaa* and African socialism on developmental imaginaries should not be understated, indeed, 'academic discussions of Tanzania inevitably begin – and often end – with an emphasis on the role and impact of the country's founder, Julius K. Nyerere' (Lofchie, 2014: 4).

2.1 Resource Extraction and Tanzania: From Colonial Times to the Millennium

The first legal framework for extraction was conducted during British colonial rule, with the Minerals Ordinance of 1920. Nine years later, this framework was updated with the Minerals Ordinance of 1929. This gave control and ownership of all minerals to the Governor of Tanganyika, and the power to grant licences and leases to individuals and companies was left to the governor of the territory (Pedersen *et al*, 2016). This served to be the legal background for the first forays into hydrocarbon exploration.

Hydrocarbon exploration began in 1952, with the British colonial administration awarding BP and Shell concessions for the costal basin of both Tanganyika and the islands of Zanzibar, Pemba, and Mafia (Mmari *et al*, 2019). As a response to BP and Shell's exploration, the Mining (Mineral Oil) Ordinance was passed in 1958. It set out general conditions for licencing, prospecting, and exploration in the hydrocarbon sector. After independence, in 1962, the powers to grant licences and leases in the previous legislation were transferred to the Minister for Commerce and Industry and BP and Shell relinquished their concessions in 1964.

The year 1967 saw a radical turning point in the history of the political economy of Tanzania. The Arusha declaration outlined the developmental model Tanzania would look to adopt a socialist society. At its core, the declaration set out a vision of self-reliance and egalitarianism and to change control of the economy to the workers and peasants. The declaration saw the nationalisation of foreign industries, as well as banks, and newly formed industrial parastatals were to drive the economy to self-dependence. For natural resources, the declaration brought the nationalisation of mines operating in the country, although these were few in number (Elbra, 2016). Furthermore, the declaration stated that 'all citizens together possess all the natural resources of the country in trust for their descendants' (Nyerere, 1967).

The *Arusha Declaration* continued the centralisation of natural resource management that had begun in the colonial era and began the doctrine of natural resources under national ownership (Poncian, 2019a). This would be further solidified in the Tanzanian constitution, which declared that natural resources are the property of the state (GoT, 1977). While these economic policies were ambitious, the transformation of the distribution of economic power was limited (Gray, 2018), and a division between the intended economic results and actual economic practises took root (Gray, 2018; Lofchie, 2014).

The core of African Socialism was *Ujamaa* (familyhood in Swahili). While the Arusha declaration was followed with nationalisations of industries and mines, *Ujamaa* was a project for the long term. Alongside the nationalisations mentioned above, *Ujamaa* was also a social policy for nation building, which resulted in 'arguably the most serious nation-building program in sub-Saharan Africa' (Miguel, 2004: 360). It set to promote Swahili as the national language and made primary education free. It set the foundations of a tradition to not to distinguish Tanzanians on religion, geography, or tribe (Miguel, 2004). It also undertook a policy of villagization, which aimed to restructure rural society around village units under local authorities. While it begun as a voluntary project, it quickly morphed into a compulsory activity, particularly in the southern region of Mtwara (Lal, 2015). While villagisation attempts failed, *Ujamaa* and African socialism would have a social and economic legacy in Tanzania that would shape the current government's attitude towards extractives.

As a part of the government's programme to create parastatals to aid industrialisation during this period, the Tanzania Petroleum Development Corporation (TPDC) was founded by the government in 1969 to aid the development of a domestic petroleum industry as a National Oil Company (NOC). TPDC was granted exploration licences from the government and could enter joint ventures with foreign partners through production sharing agreements (PSAs). This coincided with a PSA signed with the Italian IOC *Azienda Generale Italiana Petroli* (AGIP), who discovered natural gas in Songo-Songo in 1974, but this discovery was not developed due to a lack of a domestic gas market, inadequate infrastructure, and limited amount for commercial export (Mmari *et al*, 2019). While there was now confirmation of hydrocarbons in Tanzania, there was little appetite by IOCs to exploit the resource.

The demise of African socialism in Tanzania began in the late 1970s. While initial results of industrialisation were impressive (Gray, 2018), villagization attempts failed, with many farmers resisting the changes (Schneider, 2004). Other domestic issues also affected Tanzania's economic performance, which included a costly war to remove Idi Amin in Uganda, and droughts affecting the still-dominant agricultural sector. There were also global economic issues; the oil shocks of the 1970s and the following economic stagnation in the global economy severely hampered not just Tanzania, but the whole continent (Johnson and Wilson, 1982). The result of this was that by the early 1980s, the socialist policies brought by Nyerere were an economic failure (Ibhawoh and Dibua, 2003).

The early 1980s saw Tanzania begin to engage with the World Bank and International Monetary Fund (IMF) for a bailout of the economy. Along with many countries on the African continent, the conditions for financial aid rested on policy changes to a command economy to an open market economy. For Tanzania, this involved a move away from *Ujamaa* and socialism, and to change economic policy to one that invited foreign direct investment (FDI). The first of these was the 1981 National Economic Survival Programme, followed by the 1982 SAPs. After Nyerere stood down from the presidency in 1985, his successor, Ali Mwinyi, accepted the SAPs conditionalities, despite resistance from the public (Emel *et al,* 2011). With these programmes, socialist policies and *ujamaa* were abandoned, and even mocked (Fouéré, 2014).

The 1980s saw continued sporadic exploration and the passing of the *Petroleum (Exploration and Production) Act* of 1980 (GoT, 1980). This replaced the modified colonial legislation that had previously been in place. Much like legislation passed during the era of structural adjustment, this legislation provided greater security for private investors, and safety causes for contracts in respect to nationalisation (Mmari *et al,* 2019). The 1980 act marked an official separation of the petroleum industry from the mining industry (Andilile *et al,* 2019), and was the legal foundation for oil and gas exploration until 2015. The next discovery of gas in the country occurred in 1982, in Mnazi Bay by AGIP (TPDC, 2019a). Further exploitation was not deemed to be economically viable and the rights were relinquished to the Tanzanian authorities. In 1989, a Model PSA was introduced to guide negotiations with private companies. It represented a move towards 'a more rule-based system to both guide and limit the room for negotiation by outlining the royalty and taxation terms' (Pedersen and Bofin, 2019: 412). In essence, much like SAPs in other developing countries during this period, these were investor-friendly neoliberal reforms. There were also changes to the 1980 act, which changed arbitration from the High Court of Tanzania to the International Centre for the Settlement of Investment Disputes in Washington D.C. By the end of the 1980s, licences were held by Shell and Texaco in the Rovuma Basin with no major finds, and with declining oil prices during the 1980s and 1990s, little further exploration occurred.

The SAPs preceded an expansion of the gold sector, rather than hydrocarbons. This was both in the form of artisanal mining (Bryceson and Geenen, 2016), and from multinational companies (Lange, 2011). The management and social impacts of the gold sector in the 1990s and 2000s would have a massive impact on perceptions and desired outcomes from the government. The gold sector has created difficulties for Tanzania, both at the local and national level. Nationally, generous tax regimes have led to poor fiscal returns for the

Tanzanian government (Curtis and Lissu, 2008). The dominance of multinational corporations in the mining regions has created considerable social tensions between the state, the people and MNCs (Curtis and Lissu, 2008; Kitula, 2006), and has resulted in violence. This has been reflective of the social tensions that had been created by the SAPs, where ethnic and religious tensions began to appear in the country because of the SAPs (e.g., Campbell, 1999; Heilman and Kaiser, 2002). In essence, the opening of the gold sector to MNCs created particular social and fiscal issues have led many in the country to see it as a failure (Emel *et al,* 2011), and has had knock on effects for the hydrocarbon sector.

The 1990s saw the beginning of gas extraction, with the government focusing on developing the small gas discoveries found in Songo-Songo and Mnazi Bay with the involvement of the Bretton Woods institutions. This focused on the Songo-Songo field. Songo-Songo was characterised as a 'sub-commercial' field where donor finance was required for exploitation (World Bank, 1991). With the exception of domestic development of onshore gas reserves, the 'whole east coast of Africa was dismissed'[4] for hydrocarbon exploration due to the low global commodity prices of the 1990s. The beginning of this change occurred in 1999, when TPDC and Western Geophysical, an American hydrocarbon surveying company, acquired deep water seismic, gravity and magnetic data, and found hydrocarbon traces in the Indian Ocean off the southern coast of Tanzania (Mmari *et al,* 2019). From then on, exploration moved into the deep sea.

Economic reforms in the 1980s and 1990s, pushed by the Bretton Woods institutions, looked to liberalise the extractive sector, and offer generous terms to MNCs to attract FDI. While FDI inflows from mining increased to over 50% of all FDI received by the country by 2002 (Emel and Huber, 2008: 1402), there were considerable social costs, including displacement, dismissal, and confrontation between artisanal miners and MNCs, with the government often taking the side of the latter (Emel *et al*, 2011). The result of the social failures for extractive-led development was the increasing perception that Tanzania was not getting enough out of its natural resources, and opposition parties were beginning to capitalise on these frustrations during elections (Jacob and Pedersen, 2018; Poncian, 2019a).

2.2 Onshore Gas Development and Offshore Discoveries: 2000 – 2015

Following interpretation of the seismic data, the Tanzanian government launched its first offshore deep-water licencing round in September 2000, with a second round occurring

[4] Interview, Retired Senior TPDC Executive, Dar es Salaam, 15.03.2018.

in 2001 and third in 2004. The exploration area was divided into 12 blocks of approximately 10 square kilometres, similar to international competitors at the time. These rounds saw a few bids, with the second licencing round awarded block five to Petrobras, the Brazilian NOC. The introduction of the NOC provided greater confidence, and were followed with bids by Ophir Energy, Shell, BG,[5] and Equinor.[6] All blocks, bar from Shell's, were explored for hydrocarbon deposits. The reason behind Shell's lack of exploration was because the block was situated within Zanzibari territory, and a disagreement with Tanzanian parliament and the Zanzibar authorities over who controls the territory ensured that no exploration occurred.[7]

The onshore sector saw greater progression than the offshore gas industry. This centred on the discoveries in the 1980s and 1990s in Songo-Songo and Mnazi bay. While it was commissioned in the early 1990s, the Songo-Songo gas project was finished in 2004 and included a gas processing plant on the island and a 232km pipeline connecting the gas to Ubungo power station in Dar es Salaam. Mnazi bay gas fields have been on-stream and operating since January 2007 and has been providing gas for electricity generation in Dar es Salaam and Mtwara. The fields are operated by Maurel et Prom and Wentworth Resources, with the former owning 48.06%, and the latter owning 31.94%. The remaining 20% is owned by TPDC (Wentworth Resources, 2019). While the onshore sector is producing, it has not been without controversy, with the riots in particular causing considerable tensions between the government and the local populace over the Mtwara-Dar es Salaam pipeline.

In terms of capital investment, the Mtwara-Dar es Salaam pipeline is the smallest project out of the three projects that are explored in this thesis. It is also the only project out of the three that has been completed, with construction finished in 2015. The pipeline was built to connect gas from Mnazi bay in Mtwara, to the Kinyerezi power plant in Dar es Salaam for electricity generation. The pipeline was 542km in length and was built to a cost of approximately $1.22bn, which includes the cost of the construction of the gas processing

[5] BG was later acquired by Shell and hence explains their involvement in the Tanzanian gas sector beyond the initial bidding rounds.

[6] Equinor is better known by their previous name, Statoil. The Norwegian NOC changed their name in 2018. For this thesis, it will use the new name except for cases of direct quotes from respondents.

[7] Oil and gas are just one of the disputes that has emerged between the union of Tanganyika and Zanzibar (see Killian, 2008). Zanzibar now conducts its own PSAs with IOCs, and has its own petroleum act, passed in 2016, as well as their own regulatory authority for petroleum exploration and production. At the time of writing, little has occurred in the Zanzibari petroleum sector. Due to these factors, combined with methodological constraints of having to submit another research permit to access the island, this study does not explore either the dispute mentioned above or wider petroleum exploration in Zanzibar.

plant in Dar es Salaam. Construction was done by the China Petroleum and Technology Development Company, which is a subsidiary of the China National Petroleum Company. The project was marred in a corruption scandal whereby $600m was lost both in China and Tanzania (The Citizen, 2015b). It is noticeable that this is one of the few forays of Chinese investment into the gas sector in the country. The pipeline is more noticeable for the social frictions that surrounded the construction; discussions of the project caused protests in Mtwara, who objected to the removal of gas from the region. These protests turned violent on the 22 May 2013, with riots breaking out at the confirmation that construction would go ahead in the national budget. This event has had long repercussions for the region, which are covered extensively in chapter four of this thesis.

The offshore gas sector began with BG and Ophir energy commencing the first exploratory well in Pweza-1 bloc on the 18th September 2010 (TPDC, 2019b). In the same year, BG and Ophir made a gas discovery in block four, equivalent to 1.8tcf. In 2012, Equinor and ExxonMobil made a discovery of 6tcf in block two. These discoveries proved to be 'a turning point in the history of petroleum exploration in Tanzania' (Mmari *et al,* 2019: 15). Exploration finished in December 2016 for Ophir, Pavilion Energy and Shell, who brought BG in 2015 (Ophir, 2016). The last company to drill offshore was Equinor in 2017, and this was more to do with a commitment in their contract than a real desire to find more hydrocarbon deposits.[8] To date, Tanzania has roughly 57tcf of proven gas reserves (Petroleum Economist, 2019a), with 8tcf found onshore.[9]

The quantities of gas found offshore have made an LNG plant economically viable. An LNG plant cools and condenses the natural gas to a liquid form, allowing it to be transported to markets without the use of pipelines. The intended market for export is the East Asian market, which carries the highest LNG prices in the world. Out of all the projects featured in this thesis, it is by far the largest in terms of capital expenditure; it is estimated to cost $30bn, spread out through the four to five years of the construction phase. The investment potential of the LNG is huge; during the construction phase of the project, economists from the Tanzanian central bank estimate that the project will increase the annual GDP of the country by two percentage points (Reuters, 2019b). Despite the considerable amount of investment that is on offer, the project has yet to enter the

[8] Retired Senior TPDC Executive.
[9] Ibid.

construction phase of the project, and negotiations on the project have been slow to progress further.

With these developments in the gas industry in the country, it is worth noting that there are really two different forms of gas industry in Tanzania: Firstly, there is the deep-sea exploration occurring inside Tanzania's maritime borders, whose history has been covered above, and the second part of the industry which is based on land. Mnazi Bay is located to the south of the city of Mtwara. In 2006, the success and eventual development of the Songo-Songo gas field catalysed development of the Mnazi Bay gas field. Mnazi bay is located to the south of the town of Mtwara. These differences are important at a technical level but are less visible at a social and local level. Nevertheless, they are important due to the fact that hydrocarbon wealth led to promises of enormous developmental potential.

The first main difference is the amount of capital and technology required. Even by industry standards, deep sea exploration and production is incredibly capital intensive and requires modern technology for exploration, extraction, and refinement, which includes specialised infrastructure such as LNG plants. It is therefore little surprise that supermajors such as Shell and ExxonMobil have participated in this part of the Tanzanian gas industry. This contrasts with the onshore sector, which requires less capital and technical expertise and relies on a more traditional method of extraction.

Secondly, the sub-industries are currently at different phases of exploration and production. The deep-sea sub-industry has finished exploration in 2015, with only intermittent exploratory wells done after. Production has been delayed through a variety of legal battles between IOCs and the government, which will be covered in chapter eight. While there have been examples of legal issues between the government and IOCs operating in Mnazi Bay, these have not been on the same scale as those between the supermajors and Dodoma. However, the most important aspect of this is that the land-based industry is currently extracting gas, while the deep-sea industry has entered a period of stagnation.

Finally, the third largest difference is the intended destination of the gas. Land-based gas that is currently being extracted is being used solely for domestic purposes, chiefly electricity production. While smaller in terms of reserves, there are plans to export this gas for regional use (GoT, 2015b). However, for the time being, this gas is being used domestically, with a pipeline connecting the fields in Mnazi Bay and Songo-Songo to Kinyerezi power plant in Dar es Salaam. Due to the size of the reserves and the capital invested,

offshore gas is intended for international export towards the East Asian markets of South Korea and Japan.

Despite of these developments, both on land and offshore, the legal framework to govern the sector had not been updated since the 1980s. Legislative change was required to fully govern the gas sector, particularly since the industry, and global commodities market were widely different than they had been in the 1980s. The first of these major legal changes would occur in 2015, before the 2015 general election, and in 2017, with a new government and president at the helm.

2.3 Legal Changes, General Elections and Regional Politics: 2015-Present

By 2015, PSAs had been signed with ten IOCs in the coastal regions and had seen a variety of mid-range to supermajor IOCs invest in exploration of the coast of Mtwara (See Table 1 and Figure 2). With the rise of a functioning hydrocarbon sector, there have been considerable legal changes to hydrocarbon legislation as well as development of other policies, like local content. The first of these was the 2015 Petroleum Act, which had considerable changes from its 1980 predecessor. Unlike the 1980 petroleum act, which was tailored towards the oil sector, the new act was written for gas exploration and production. The act, passed at the end of Kikwete's tenure, also saw a return of resource nationalist policies to the hydrocarbon sector (Jacob and Pedersen, 2019; Poncian, 2019a). Under this legislation, TPDC evolved from a promoter for exploration (Clarke, 2010), to a vehicle for greater involvement in the industry (Pedersen and Kweka, 2017). It is worth noting that all the PSAs signed were before the 2015 petroleum act passed.

Block Name	Main Operator	Partners
Block 1	Shell	Ophir Energy, Pavilion Energy
Block 2	Equinor	ExxonMobil
Block 4	Shell	Ophir Energy, Pavilion Energy
Mnazi Bay	Maurel and Prom	Wentworth Resources, TPDC
Songo-Songo	Orca Exploration	Songas

Table 1: List of IOCs operating in offshore and onshore Tanzania. Note, this does not include onshore exploration blocks or companies.

These legal changes also brought changes in the bureaucratic structure of the gas sector. This included the establishment of the Petroleum Upstream Regulatory Authority (PURA), and the changing of the roles of TPDC to be a functional NOC (Melyoki, 2017). The 2015 act also brought new responsibilities for the Energy and Water Utilities Regulatory Authority (EWURA), and new advisory bodies such as the oil and gas bureau, which was

created within the office of the president to advise the cabinet on matters relating to the hydrocarbon industry.

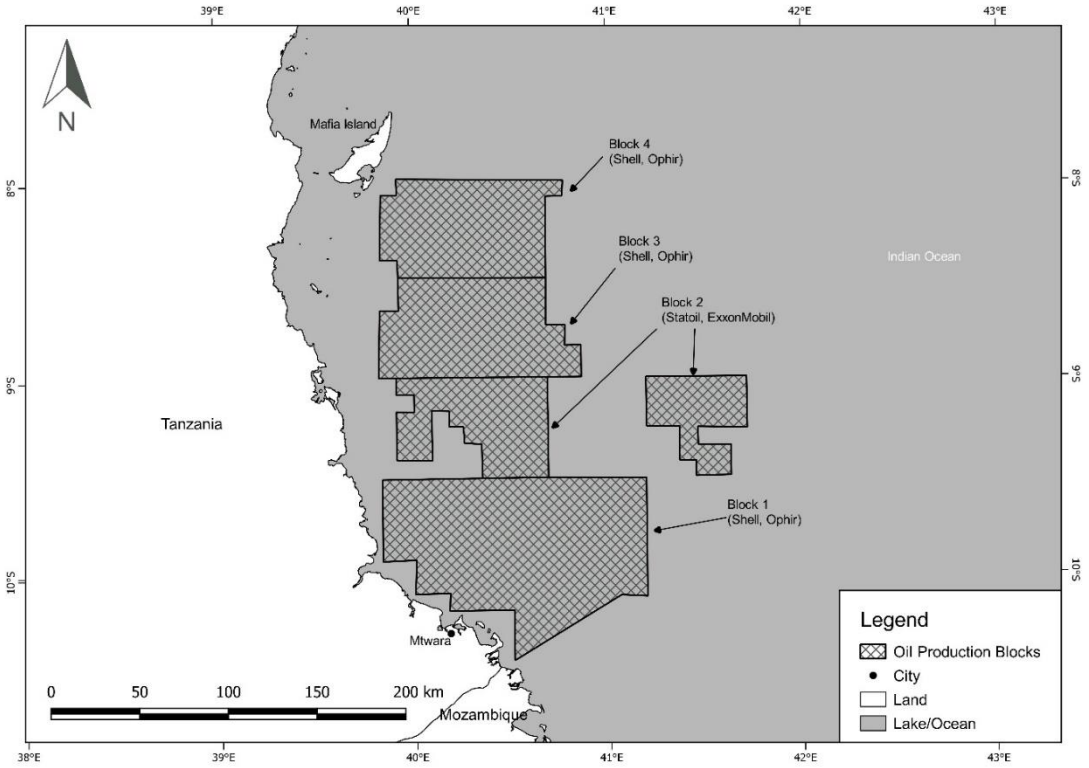

Figure 2: Map of Current Operational Blocks in the Offshore Tanzanian Gas Sector

Developments in Tanzania's legal and institutional framework has tended to come as responses to international factors such as price fluctuations and activities of IOCs (Figure 3). They are also framed by the authorities' ideological vision of the state's role in the extractives sector (Pedersen and Bofin, 2019). Much like the history of extraction in Tanzania, many legal developments first occurred in the mining sector, with the gas sector following, with policies shaped by the experiences of the mining sector.

The election of Magufuli had a considerable impact on the discourse of the extractives sector and has coincided with a global change in the nature of state-MNC relations, whereby states have sought to obtain greater economic and social results from extraction than seen in the 1980s and 1990s. The historical memory of Nyerere's opposition to foreign investment has continued to this day and has been a rhetorical tool for the government to secure public support for resource nationalist policies (Poncian, 2019a).

Under Magufuli, there has been a larger push into resource nationalist policies, with the passing of four major pieces of extractive legislation: Natural Wealth and Resources (Permanent Sovereignty) Act (2017a); the Natural Wealth and Resources Contracts (Review and Re-negotiation of Unconscionable Terms) Act (2017d); the Petroleum (Local Content) Regulations (2017b); and The Written Laws (Miscellaneous Amendments) Act (2017c). The latter is primarily aimed at the mining sector but does amend some parts of the 2010 Mining Act.[10] Since the announcement of these laws, frictions between the government and the IOCs have been exacerbated, and there has been little progression to extraction of deep-sea gas. It is within this context that fieldwork begun, and these legal changes and government discourse that would dominate the extractives sector.

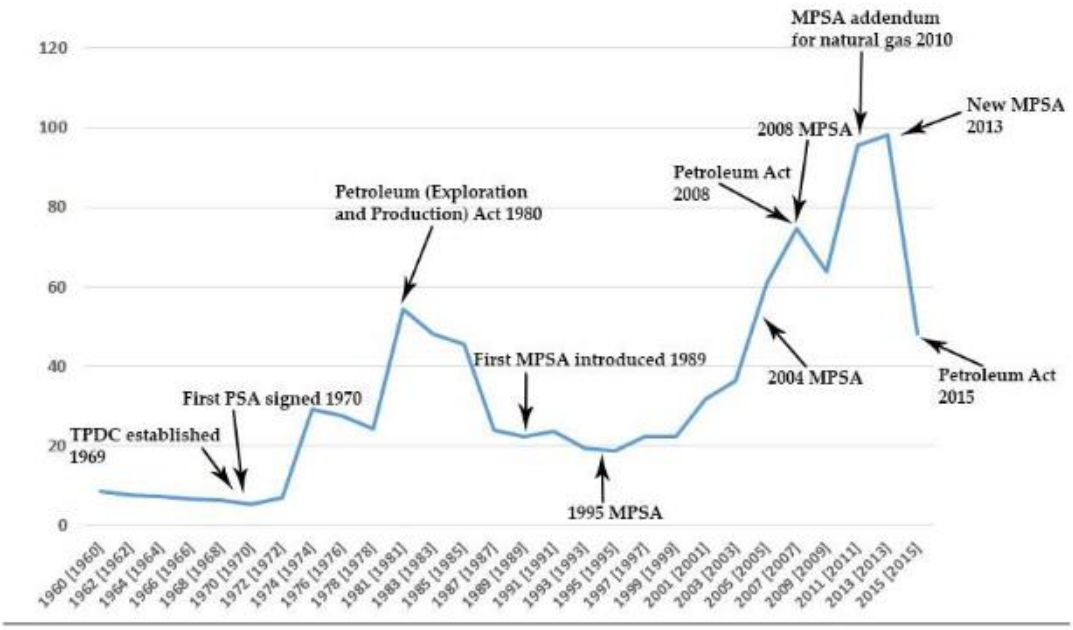

Figure 3: Average Global Oil Prices 1960-2015 and Key Tanzanian Regulatory Events (Bofin and Pedersen, 2017).

Alongside legal changes and bureaucratic restructuring of the hydrocarbon sector in Tanzania, has been the announcement that Tanzania would be the chosen route for EACOP. Unlike the previous LNG and Mtwara-Dar es Salaam pipeline mentioned above, the EACOP project is a cross-border project between Uganda and Tanzania. Announced in April 2016, the route will take oil from its source in Hoima to the port of Tanga. At 1,443km in length and at an estimated cost of $3.5bn (EACOP, 2017), EACOP will be the longest electronically heated pipeline in the world, and one of the largest cross-border infrastructure projects in the history

[10] An in-depth analysis of the politics behind these legal changes is included in chapter eight. For an in-depth discussion on the history of local content in Tanzania, see chapter seven.

of East Africa. Most of the construction will occur in Tanzania, with 1,147km of the pipeline being constructed across eight regions.[11]

EACOP is now its own registered company, although ownership of the project is divided between five partners. The first two are the NOCs of the nations which the pipeline passes, Uganda, and Tanzania. These are the Ugandan National Oil Corporation and TPDC, respectively. The other three partners of the project are IOCs currently operating in exploration and production of Uganda's oilfield in Lake Albert: The French Supermajor Total, the Anglo-Irish medium sized oil company Tullow Oil and the Chinese National Offshore Oil Corporation, owned by the People's Republic of China. Much like the Tanzanian offshore sector, EACOP has had difficulties in the negotiation phase with both the Tanzanian and Ugandan governments. Since the 4th of September 2019, all technical work on the EACOP project has been suspended. This is less to do with the project itself, but rather issues in the Ugandan upstream sector over the farming down of a stake in the industry between Tullow Oil and Total (Reuters, 2019c).[12]

With the current difficulties in the export-oriented sector, the current gas industry is solely used for domestic consumption, primarily for power generation. As of 2018, natural gas provided TANESCO with 55% of total power supplied to the national grid (Mmari *et al*, 2019). Alongside power generation, gas has proved to be finically beneficial for the state; although it has diminished in time, due to the lack of continued exploration and the lack of new deals signed since 2015, in 2011 and 2012, the petroleum industry's contribution through exploration licence payments accounted to 2% total government revenues (Pedersen and Bofin, 2015). However, the biggest saving has been through the reduction of hydrocarbon imports. Between 2004 and 2018, the use of Tanzanian gas, instead of imported hydrocarbons, has provided savings of $11bn (Mmari *et al*, 2019).

The developmentalist imaginaries in Tanzania have been heavily shaped by Nyerere and African socialism. The political legacy of these policies, while mixed in practise, have been utilised by successive CCM governments to legitimise resource extraction. This effect has been catalysed by the perception that Tanzania fared poorly during the era of structural

[11] These Tanzanian regions are (in order of pipeline route west to east) Kagera, Geita, Shinyanga, Tabora, Singida, Dodoma, Manyara and Tanga.

[12] A 'farm out', or a 'farm down', is 'a contractual agreement with an owner who holds a working interest in an oil and gas lease to assign all or part of that interest to another party in exchange for fulfilling contractually specified conditions' (SLB, 2020).

adjustment, which has caused both contemporary issues for both the government and for local populations near mines.

3 Arguments of this Thesis and Research Questions

This thesis explores how time and temporality has been utilised in the Tanzanian hydrocarbon sector. Specifically, it explores the temporalities of direct stakeholders, and how they have been influenced by the introduction and changes in the sector. These temporalities have altered the actions of actors at variety of spatial levels and have manifested in a variety of ways. It argues that these differing temporalities of direct stakeholders in the sector, across different spatial scales, have created friction between actors. Central to this has been the friction between competing imaginaries of the future between various actors, and how different actors have sought to change the pace of the sector to suit their own strategies.

The purpose of this thesis is not to remove space, as space is, and always will be, the 'fundamental stuff' of geography (Thrift, 2008: 85). It is rather to explore underexplored temporalities within extractives and how these influences or are influenced by resource policy. In essence, this thesis will explore the temporalities of the Tanzanian hydrocarbon sector, with a particular focus on differing and competing imagined futures and resource strategies. Central to this is a growing resource nationalism in Tanzania, and an accompanying discourse that has tied Tanzanian nationalism with a national use of hydrocarbons. Due to these factors, the overarching research question for this thesis is:

- **How do the temporalities of extraction influence the actions of direct stakeholders in the Tanzanian hydrocarbon sector?**

This question requires some explanation of some of the terms it is utilising. Temporalities of extraction, in this instance, involve the foremost temporalities found in the hydrocarbon sector. These include the commodity cycle and lifecycles of infrastructures and gas wells. The former consists of supply and demand of the mineral or hydrocarbon in question and is dependent on a variety of factors that influence this supply and demand. The latter consists of a linear project timeline whereby a project will go through specific phases from its initiation to eventual closure. These temporalities are dominated by capital, technological, and political factors at both a global and national scale. Finally, there is the perceptions of time experienced by all actors, which can be through a glorified past, or expectant future, or in some instances, both. In the Tanzanian context, temporalities of extraction focus on the

Japanese and Asian gas market commodity cycles, the lifecycle phases of onshore and offshore gas wells, which are in different stages of production and exploration respectively, and the project lifecycle phases of midstream infrastructure, in this case the LNG plant and EACOP, both of which are supposedly entering the construction phase.

In terms of perceptions of time, this thesis will chiefly focus on how the hydrocarbon sector has changed perceptions of the future, particularly within the context of economic development, both at the local and national level, and how this has contrasted with perceptions and time horizons of IOCs operating in Tanzania, as well as between other national actors. This is both in the form of current perceptions of the future of the sector, and how this is creating frictions in the present, and how previous imaginaries of gas-led development have turned out to be false, and the fallout from these predictions and plans.

For this thesis, direct stakeholders include not just the Tanzanian government, but also its various ministries and parastatals that are involved in the hydrocarbon sector. Within this, the thesis will explore natural resource strategies, which include the variety of different laws, policies and plans the Tanzanian government had, or has, for the hydrocarbon sector. These have changed with successive governments, or from new events from both inside and outside Tanzania. These are as much political and social as they are economic strategies. They seek to both construct and reconstruct national identity and unity from the development natural gas promises. In essence, they either are or represent the government in some capacity on hydrocarbon governance matters. Non-state stakeholders, in this instance, include private companies (both IOCs and smaller Tanzanian companies), NGOs and communities and individuals within Tanzania.

Temporalities of extraction can be broken down into different aspects of extraction where time is central. For this thesis, this is primarily focused on the commodity cycle, the timeline of a gas well's lifecycle and the project timeline of associated infrastructures, and how these have influenced state and non-state actors. These are dictated by different aspects of time, such as the linear aspect of lifecycles of a non-renewable resource, and the cyclical nature of commodity prices. Alongside these are the differing time horizons of key actors, most notably the IOCs and the Tanzanian government. These are international in scope and dictate IOCs corporate strategies. Yet, at the same time, they also must engage with both the government and the wider population. As it will be shown, the latter's hopes, expectations and imaginaries of the future change with the actions of political and corporate decisions and actions around the sector. This research question also has a set of research

sub-questions. These will focus on different aspects of the sector and are covered in the succeeding chapters. These are:

- **How do the temporalities of the extractive industries interact with economic development?**
- **How is time utilised in extractive resource governance?**
- **What role does materiality have in the temporalities of extraction?**

For the first question, a definition and understanding of what development is, is required. Development can be seen as providing 'a frame of reference, a set of themes, and a wealth of ideas and interpretations, contestations, and debates, across the main social science disciplines' (Bernstein, 2006). Thomas (2000), separates three contemporary meanings of the term development, as:

1. As a *vision, description or measure of the state of being of a desirable society*;
2. As an *historical process of social change* in which societies are transformed over long periods;
3. As consisting of *deliberate efforts aimed at improvement* on the part of various agencies, including governments, all kinds of organizations and social movements. (Thomas, 2000: 777, emphasis in the original).

The three meanings above highlight the fact that 'development' has meant different things in different places throughout history (Bernstein, 2006). This thesis focuses on the 'immanent' process of development. First coined by Cowen and Shenton (1996), immanent development occurs as a penetration of capitalism (Ulluwishewa, 2014). This form of development resembles Thomas's second and third contemporary meanings of development. This is due to the thesis' focus on the internal processes driven by the extractives sector, rather than 'intentional' development projects brought upon by outside development agencies.

Development is a central discourse when discussing African extraction, albeit it in an uncertain role. On the one hand, the extractive sector has been central to attempts to economically develop, either through exports of raw materials, attraction of FDI, or attempts to spur local industries down the supply chain using raw and processed resources. However, as it will be explained in detail in the literature review, these have often failed, and governments are wary of the risks of mineral dependence can bring. However, less has been discussed on how the temporalities of extraction shape and alter economic development

strategies and local expectations. Chapters five, six and eight will explore how temporalities of extraction have altered the process of economic development.

The second question explores how time is understood by state actors and how it is utilised within extractive resource strategies. It is closely tied with the first question in that in Tanzania, the extractive industries are planned to aid wider economic development. This question has a strong focus on greater state participation in the sector, and how Tanzanian 'resource nationalism' has encountered difficulties in the commodities cycle and project lifecycle. Chapters six, seven, and eight will explore how these policies have interacted with extractive temporalities, as well as how these have altered actor's behaviour to engage with the hydrocarbon sector.

The final sub-question will explore the interaction between materiality and temporalities in the hydrocarbon sector of Tanzania. Materialities, in this instance, encompass the hydrocarbon itself and the associated infrastructure required to extract, transport and process raw hydrocarbons into useable products. Materialities of natural resources shape social processes (Mitchell, 2011), and as will be shown, technological advances alter both the materiality of hydrocarbons and the temporality of the sector. These material transformations of both the hydrocarbon and the infrastructure also alter the temporalities of extraction, with consequences for state and non-state actors. Chapters four and six will delve deeper into this question.

3.1 Argument of the thesis and relevance

This thesis' main argument is that the introduction of the hydrocarbon sector, and its corresponding temporalities, have caused a fundamental change in the behaviours and perceptions of time at multiple spatial levels, with the primary result of this change being friction. As will be shown in the empirical and analytical chapters of this thesis, this change has expressed itself differently within actors, ranging from the government, to national businesses, to the local population.

Central to this has been differing perceptions of the future, which have dictated actions in the present. This has been guided by changing temporalities in the sector, chiefly through market and technological changes. This has been combined with a greater desire to utilise extraction for economic development. Due to differences, this has created friction between direct stakeholders in the hydrocarbon sector. These come from different spatial levels, from the global with IOCs, the national with domestic large to medium sized

businesses and the government, to the local, with small and medium enterprises (SMEs) in extraction areas and local communities near extractive sites.

The promises of hydrocarbon wealth have changed both the Tanzanian government's development strategies and discourse around economic development. It has served both to obtain a greater share of hydrocarbon wealth than before in the gold sector, and to fracture national unity between gas producing areas and the national government. This is in contrast with the IOCs, where falling hydrocarbon prices have questioned the economic viability of the larger scale hydrocarbon projects. These divergent positions have served to create frictions between multiple actors, from the national government and the IOCs over both the wealth created through extraction and the time horizons of obtaining that wealth, to the shifting perceptions of the future generated by gas extraction between the government and local communities. The perceptions of a prosperous future financed by gas had direct implications for the region of Mtwara, who anticipated an economic resource boom that never arrived. Finally, infrastructures and technological change of the materiality of natural gas have both created opportunities for the government, IOCs, and domestic businesses to obtain greater wealth and control, but also have served to disenchant perspectives of future prosperity in pipeline and gas producing areas.

This thesis primarily contributes to the disciplines of political geography and African studies. For the political geography of extractives, it utilises a greater emphasis of time alongside space as a means of better understanding extractive phenomena. For African studies, this thesis contributes to the scholarship on resource governance in African states. This is particularly timely due to the growing 'resource nationalism' on the continent, supported not just by states, but by international organisations such as the African Union through their *Africa Mining Vision*, which set out greater state involvement and domestic participation in extractives sectors on the continent (African Union, 2009).

Theoretically, this thesis utilises a temporal lens to better understand the politics of extraction. In doing so, it seeks to present an alternative viewpoint of both the development and the politics of extraction through how changing temporalities, and perceptions of time, have been drivers for stakeholders' actions in the hydrocarbon sector. As it will be shown in the next chapter, temporalities have typically been under explored in a variety of social science disciplines, particularly in geography and political economy. Extraction provides a good opportunity to highlight the different ways temporalities and spatialities affect resource governance across different scales. Temporality, in this respect, is understood to be

multifaced and plural, but has traditionally been hard to conceptualise. The extractive sector has its own set of times; be it the commodities cycle, rhythms of extraction and linear project timelines, and these combine with the politics of the local and the national, as well as altering perceptions of the future, particularly regarding economic and social development. It is therefore a theoretical goal of this thesis to present temporalities as a viable way to better understand current trends in extraction.

This thesis finds its empirical relevance through a variety of contemporary socio-economic phenomena that are present throughout many resource intensive economies. Firstly, global commodity markets declined sharply from 2014 to 2016, and since then, has seen considerable volatility (Figures 4 and 5).[13] Considering that the economic viability of many hydrocarbon extractive projects relied on the high oil and gas prices that were seen during the global commodity boom of 2000 to 2014 (with a brief fall during the 2008 recession), this has resulted in IOCs and mining corporations owning projects that require large sums of investment in a short to mid-term market that will not justify the costs, and where long term concerns over the demand of oil have arisen (Roland and Mjelde, 2016; Jefferson, 2020). This is particularly true for hydrocarbon projects in East Africa. In one

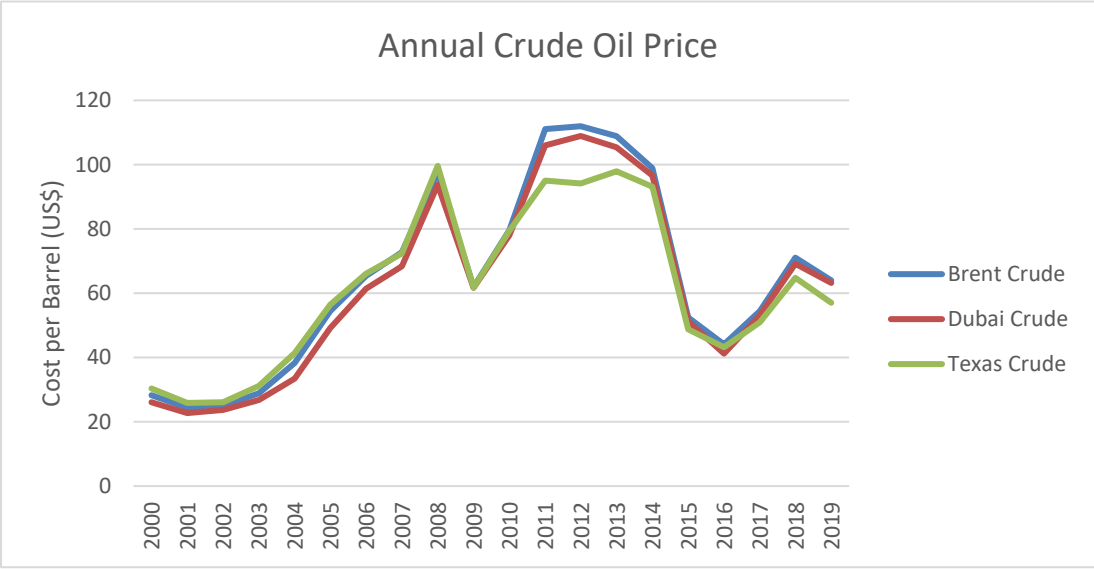

Figure 4: Annual Crude Oil Price in Dollars per Barrel, 2000-2019 (IMF, 2019).

[13] Note on Figure 5: Compared to the oil price, the gas market is more regionalised in terms of pricing (Bridge and Bradshaw, 2017) and is more receptive to regional variables. For example, the reason for the lower gas price in the US in the past decade is the shale fracking revolution that occurred in the US (Boersma and Johnson, 2012). This is also the reason why Asia's natural gas is imported in LNG form; the lack of available natural gas means that gas is imported in a liquid form and undergoes regasification upon import. As one could imagine, this is more expensive than importing via pipeline, which is how much of the EU imports natural gas.

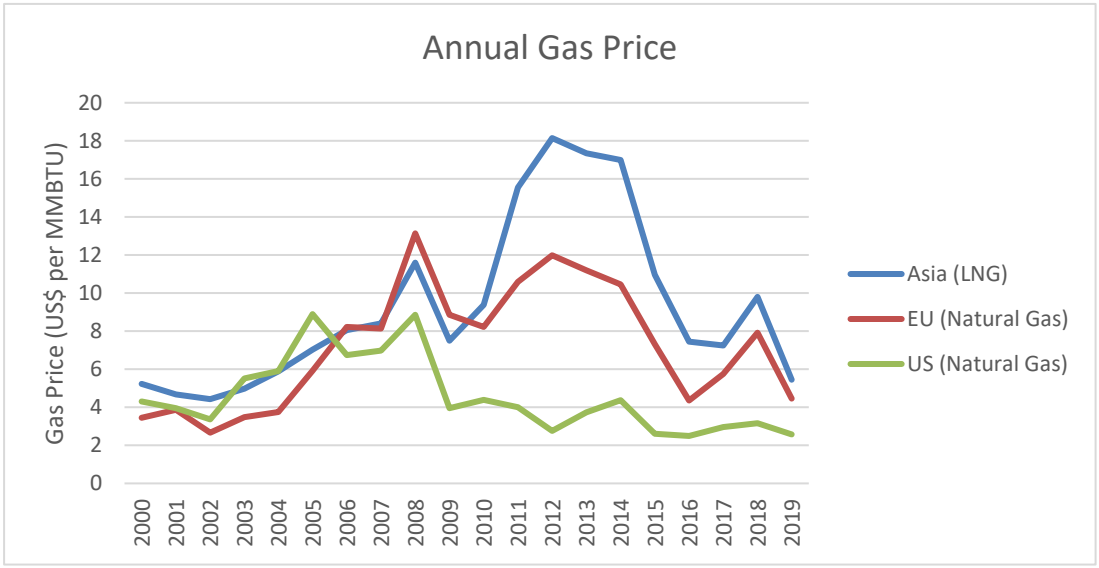

Figure 5: Annual Natural Gas Price per MMBTU in Dollars, 2000-2019 (IMF, 2019).

respect, IOCs overextended their exploration and production projects during the boom period, and in the resulting bust are left with projects that may not be profitable. Temporalities are central to this; the commodities cycle is central to investment strategies by IOCs, but they also have to interact with local and national forms of organising time, be it through electoral cycles, or changing short to medium term resources strategies and development agendas.

This leads to the second reason behind this thesis' relevance: the rise of greater state intervention in extractive resources in the global south, often decried as 'resource nationalism'. As will be shown in the next chapter, current theories on resource nationalism suggests that states engage with the practise during times of high commodity prices and when the infrastructures to extract and export hydrocarbons are established. Yet Tanzania has neither the established infrastructure nor is it pursuing resource nationalist policies during a time of high prices, in fact it is the opposite. This suggests that the older literature on the subject is inadequate to explain why this is the case.

The third aspect of this thesis' relevance relates to the lack of theoretical understanding of how time is understood, changes, and is utilised by different actors in the hydrocarbon sector. Empirically, this lack of insight currently limits the understanding of motivations of actors from a temporal perspective. This is in both in terms of actions caused by the temporalities of extraction, such as boom and bust cycles, and perceptions of time, either from the past or future. As it will be shown in the literature review later in this thesis, the understanding of time in the extractives sector is not a new concept (e.g., Ferry and

Limbert, 2008; Weszkalnys, 2014), however there are still considerable gaps in the literature that could greatly enhance the social and political understandings of extraction.

The initial discovery of natural gas in Tanzania and resulting political promises, combined with the high prices during that time, created great expectations of wealth in the country (Bugane, 2016; Polus and Tycholiz, 2019). However, at the time of writing, the gas sector has seen little movement in the projects with the highest capital investment or export capability; while the onshore sector is currently producing gas for the domestic market, the offshore sector, where there is the largest potential for resource wealth through export, has not progressed sufficiently since 2015. Indeed, it is regressed, with major oil companies such as Petrobras, and now, ExxonMobil, looking to leave the sector completely (Reuters, 2018a). This, combined with the research questions mentioned above, provides fertile ground for the study of how extractive temporalities interact with the political economy of varying spatial scales, and how they have been used and affect operations both at the boardroom and local level.

4 Chapter Breakdown

This thesis is structured into nine chapters, two of which are this introduction and the conclusion, literature review, methodology, and five of which are empirically and analytically focused. The research chapters of this thesis are structured spatially. The first two research-focused chapters start with the local level in Mtwara, the region with gas deposits and used as the main port for offshore exploration. It explores how the promises of natural gas wealth changed expectations and actions accordingly, and the fallout after it became apparent that the projected resource boom would not happen, and the imagined future of an economically developed Mtwara did not come to fruition. It will then move on to a more national level focus, highlighting how contrasting strategies and imaginaries between the government and IOCs have created considerable frictions between the actors. It is worth noting that this thesis does not treat businesses, both national and international, as monolithic, and it will show that there have also been divisions between businesses over how to progress the hydrocarbon sector.

The second chapter is a review of the literature on extraction and temporalities. The purpose of this chapter is twofold: firstly, it provides an outline of the theoretical tools that underpin this thesis, as well as providing an in-depth discussion of the core themes of this thesis: time, development, and resource governance. Secondly, it discusses developments

and debates in extractive literature, specifically resource geography literature, and which gaps in the literature this thesis seeks to fulfil. While the discipline of this thesis is resource geography, it looks to take advantage of the interdisciplinary nature of scholarly engagements with extraction. Debates around anthropology and political economy of extraction in particular are examined. It highlights how temporalities have often been neglected for space, and how the lack of understanding of time has limited current academic engagements with extraction.

Chapter three focuses on the methodology of this thesis. It covers the practical aspects of this study, such as obtaining access and data collection, as well as how events and other factors shaped data collection. This includes discussions on positionality, research assistants and unexpected events that occurred during fieldwork in Tanzania. It also explores a methodological issue that is currently lacking discussion in methods literature: the stresses and unexpected consequences that fieldwork can have on mental health.

The first empirical chapter focuses on the Mtwara gas industry, and how the introduction of the gas sector dramatically changed expectations of the local population there. It seeks to fill a literature gap by highlighting the roles infrastructures play both in the construction and evolution of resource nationalism. It argues that the introduction of the gas sector to a region that has typically been disregarded by colonial and post-colonial governments, combined with political promises made in the 2010 general election, raised both expectations and the pace of development. The construction of a resource sub-nationalism formed in Mtwara based on both grievances and expectations. However, the construction of the Mtwara-Dar es Salaam pipeline provoked considerable protests and riots and resulted in a crackdown by the government. The construction of the pipeline, combined with the lack of perceived progress of socio-economic development in the region, in both frustrations in the local population, and a shift away in perceptions of what hydrocarbons could bring. In this respect, this chapter does not just engage with the material realities of the gas sector, but also the imagined futures that preceded the pipeline, and how it evolved once it had been constructed. This chapter has been edited and submitted to the *Journal of Southern African Studies* as a part of a special issue on resource nationalism in Southern Africa. It has been reviewed but, at the time of writing, has yet to be resubmitted with revisions.

Chapter five engages with the introduction of international temporalities and how these interact with the global energy landscape. Focusing on Mtwara, it argues that the

boom-and-bust cycle has changed Mtwara from an economic periphery to an 'extractive frontier', not just for international investment, but also for domestic capital. The change of Mtwara to a frontier for extractive capital investment also introduced the region to the most dominant temporality in the hydrocarbon sector, the volatile boom and bust cycle. It argues many of the long-lasting changes occurred due to the changes in Tanzanian perception of Mtwara. This boom was further propped up by the exploration and construction phase of the gas well lifecycle, which is traditionally the most labour- and capital-intensive part of the lifecycle. The drop in gas prices resulted in an economic slowdown of the region, in turn changing once again the perception and status of Mtwara as a 'frontier'.

Chapter six focuses on the temporalities behind hydrocarbon megaprojects in East Africa. It focuses on two projects: The LNG project, based in Lindi, and EACOP, which is a planned pipeline to connect the oilfields in Homia, Uganda, to Tanga for international export. While both projects have the possibility to bring substantial amounts of capital to the country, both have stalled. This chapter focuses on the conflicting strategies of actors and various extractive and electoral cycles. The reasons for this are both national and international, and the contrasting long term strategies between actors involved in the projects have led to lengthy negotiations.

Chapter seven follows on the discussion into infrastructures by examining the spatio-temporalities of the implementation of local content policies for EACOP by the Tanzanian government. Costing $3.5 billion and spanning Uganda and Tanzania, the pipeline is one of the largest cross-border infrastructure projects in the history of East Africa and has presented both countries an opportunity to enhance local content policies in the hydrocarbon sector. It has also presented a unique project to study the temporalities of local content. With the majority of investment expected to occur in the construction phase that is estimated to be completed in two to three years, there appears to be a short term 'window of opportunity' for companies and labour alike to participate. This chapter argues that the temporary nature of EACOP resulted in the construction of urgencies to establish a comprehensive local content sector. The result of this is one of multiple paces, and a division on what local content entails based on geography. Significant portions of this chapter have been converted into a journal article for *The Extractives Industry and Society* (see Barlow, 2020).

The penultimate chapter explores the recent legal changes that have occurred in the Tanzanian petroleum sector since 2015, and its impact on the offshore portion of the gas industry. These changes, decried as 'resource nationalism' by pro-market opponents, have

been conducted in an attempt to control the pace of development in the sector. It argues that time, in this case, in the form of delay, has been used by the government to attempt to obtain greater revenues from the sector. Central to this has been the gas well lifecycle, and how the transition of exploration to production has been stifled with these legal changes. This chapter seeks to highlight the flaws of current pro-market resource nationalism theories, particularly OBM, and how they fail to consider domestic pressures and drivers for such policies.

Chapter nine concludes. It seeks to bring the arguments presented in the previous chapters to present the findings to the research questions mentioned above. It also seeks to highlight some of the limitations of this study, from both methodological limitations, as well as events that have happened after fieldwork that have altered some of the findings of this study. Finally, it seeks to provide potential new avenues of research for further study.

Chapter II: The Temporalities of Extraction

1 Introduction

Time is an ever-present way of organising life. Be it daily routines, annual events like Christmas, or quadrennial events such as the Olympics, the organisation of time provides structure and routine to individuals and societies alike. Time is ever-present and homogenous across all actors and all spatial scales. With this, time has also tended to be treated as the background to social science research, whereby time acts as a 'Newtonian grid in which social processes are determined by variables that act upon each other by a smooth, predictable, gradual, and linear social gravity' (Sewell, 2008: 517). However, while time is homogenous across all actors, the perception of time is multifaceted. Yet, it has not been treated as such, discounting how various, and as this thesis will demonstrate, sometimes competing, time horizons, cycles, rhythms and perceptions of the past and future influence actions, motivations, and perceptions of actors.

Resource extraction comes with distinctive multiple temporalities, including a variety of pauses, rhythms, and speeds that interact at different spatial levels (D'Angelo and Pijpers, 2018). This can be at the global level, with commodities markets dominating actions of states and MNCs alike, and at the local level with a gas well's production lifecycle impacting communities near extraction. These are infused with the effects of time, such as hope, expectations, dread, and nostalgia, and can differ within individuals and across class lines (Ferry and Limbert, 2008). However, as it will be shown, time has often taken a back seat to space as a central mode of analysis of the political, economic, and social implications of natural resource extraction.

This literature review focuses on resource extraction as a whole, rather than just on the hydrocarbon sector or natural gas extraction. Whilst oil has unique effects on the political economy of a state, in that it generates unique social structures (Watts, 2008), unique political effects (Ross, 2001) and unique temporalities (Weszkalnys, 2014), the natural gas sector does not generate such strong effects on states and is seen as oil's 'little brother' (Komlev, 2016: 95). While natural gas is a part of the hydrocarbon sector and involves the same, or similar actors, particularly in the private sector, it does not generate the same amount of revenues nor does it have the same geopolitical significance as oil. It also has a more regionalised market structure and a smaller (but growing) role in global energy supply (Bridge and Bradshaw, 2017). Furthermore, while literatures on mining, development and

temporality may have differences within the mode of extraction and the material sought, they offer valuable insights into how extraction influences, and is influenced by, temporalities across various spatial scales.

This chapter argues that temporalities has been on the side-lines when conducting extractive geography research into extraction. However, this is not to say that it has been excluded wholeheartedly. Rather, temporalities and time have been included in analysis through the inclusion, and somewhat limited discussion, of temporalities of extraction, in particular the commodities cycle. As it will be shown, unlike resource geography, anthropology has explored the temporalities of extraction in greater detail. While this has aided our understanding of the social and political phenomenon of extraction, a more geographical focus would aid our understanding further.

The purpose of this chapter is twofold: firstly, it highlights resource geographies limited engagement with time in an empirical sense, as well as provide definitions and outlines of themes that are central to this thesis. Some of these terms have been contested and require explanation of both their use and their origins and debates. Secondly, this chapter will engage with wider debates within natural resource literature, with a focus on literatures that have engaged with the temporalities of extraction. As it will be shown, much of the research exploring temporalities of extraction has come from anthropologists (e.g., Halvaksz, 2008; Pijpers, 2016). It has been anthropology that has explored the temporalities of extraction in greater detail. Rodgers (2015) identifies two broad themes which anthropologists have explored oil: temporalities and materialities. Both themes are central to this thesis.[14] In this respect, this review is not limited to geographers, but rather how social scientists have looked to engage with natural resources. Because of this, this review is not limited to geographers, but rather how political geographers, anthropologists and political economists engage with temporalities and/or natural resource governance. This follows the multidisciplinary nature of natural resource literatures as a whole.

The chapter is organised as follows: following on from this introduction will be a discussion on definitions and categorisations select terms which are central to this thesis utilise. It also discusses how time has been theorised in political geography. It places emphasis on how temporality has been neglected in geography. Section three discusses how the literature has explored resource governance, with a particular focus on the temporalities,

[14] Unlike temporalities, materialities does have a substantial discussion within geography and resource geography. This is discussed below.

either directly or indirectly discussed in neoliberal and resource nationalist resource governance. It also discusses the temporalities of the resource curse, highlighting both how it has progressed scholarly understanding but also its current limitations. It highlights how natural resources have been viewed as a vehicle of development, and many of the pitfalls, known as the multifaceted 'resource curse', that have affected many developing states. The chapter then moves onto wider discussions of temporalities and extraction, highlighting how select temporalities, such as shifting imaginaries of the future that come with extraction and the boom-and-bust cycle have been covered by political geographers, political economists, and anthropologists. Section five concludes and underlines the gaps in the literature that this thesis will look to contribute too.

2 Definitions and Categorisations

This thesis will engage with resource literature, particularly literature that engages with the politics behind resource nationalism and resource geography. Resource geography is 'positioned largely at the intersection of political ecology and political economy' (Koch and Perreault, 2019: 616; see also, Bakker and Bridge, 2006, Bridge, 2014; Bridge and Le Billon, 2013). In a broader sense, resource geography can be described as:

> 'linked to political geographies by concerns over territoriality and proprietorship, to economic geographies through networks of production and consumption, to social and cultural geographies by collective practice and meaning making, and to environmental geographies through the modification of natural systems' (Rossiter, 2010: 2446-2447).

In this respect, the sub-discipline is wide ranging, with connections to other sub-disciplines through the usage, control, and nature of natural resource extraction. While this thesis will look to use terminology associated with resource geography, it, much like other extractive literature, will also engage with resource issues arisen from other disciplines. Hence, while this thesis situates itself within the resource geography sub-discipline, it will also look to present other disciplines understanding of resource terminologies due to the interconnectedness of natural resource literature. Most notable of these are political economy and anthropology which will be expanded upon below.

2.1 Geography and Time

As mentioned in the introduction of this thesis, temporality is defined as 'the nature or structure of time, in terms of its objective existence, its subjective experience, or both, and particularly with respect to the relations among its dimensions (past, present, and future) and the way in which it passes' (Widder, 2010). It is worth emphasising that while

time and temporality are similar, there are some important differences between the two terms, and academic geographers have not expressed the differences between these terms clearly (Mayhew, 2009). Time is measurable and ever present, and this contrasts with temporality, which is more concerned with how the sequence of time is experienced or perceived (Mayhew, 2009). In essence, time that passes are constant for states and societies, but the perception of how that time passes is different.

These differences between time and temporality are vital when in conjunction with a discussion of space. Space is the 'fundamental stuff of human geography' (Thrift, 2008), and while temporality and time is central to this thesis, this is often done alongside a discussion of space. As with the definition of time above, time is the same across different spatial scales. The scales this study primarily use is the local, the national, and the global. These have been contested terms (Herod, 2010). For this thesis, the local will often refer to the local city or village (the cities of Tanga and Mtwara, or the villages surrounding Mtwara city), the national will focus on the nation of Tanzania and the global will focus on MNCs and markets.

Temporality has been neglected by geography due to the 'spatial imperialism' experienced in the discipline (May and Thrift, 2001: 2). The writings of Kant, who separated time and space, history and geography, exerted a strong influence of a mind-set that geography should be concerned with space rather than time (Merriman, 2012). Contemporary geographic literatures rarely explore time or temporality as a part of their spatial analysis.

David Harvey offers one of the most substantive attempts at understanding the interaction of space and time in capitalism through time-space compression (Harvey, 1989). Harvey approaches through a constructivist lens, viewing space and time as basic categories of human existence, and they are 'both social and objective' (Harvey, 1990: 442). Following on from Marx's 'annihilation of space by time' concept, time-space compression occurs as a result in technological innovations, such as improvements in transport and communication, allowing for a restructuring of space and time (Harvey, 1989). In essence, technological innovations, specifically during the pre-WWI period and the end of the twentieth century, where technological innovation oversaw a significant acceleration in the pace of life, whereby the space was 'reduced' through technology, and both space and time has been compressed. A good example of this is the telegram and the internet, which has resulted in

less time required to communicate across greater distances. This has entered popular lexicon with phrases like the 'world is getting smaller'.

However, time-space compression lacks a systematic approach to time, with no agreed upon concept of temporality that could be built upon (Castree, 2009). Massey (1992) critiqued the idea of 'time-space' compression for exclusive concentration on the power of capital which results in the neglect of other factors, such as ethnicity or gender, that can also dominate the experience of 'time-space' in capitalism. Instead, she uses 'power geometry' as the metaphor to see certain flows of economic, gender and ethnic power in relation to which social groups are differentially located.

Since the mid-1990s, time has slowly been 'banished' from geography (Latham, 2011: 315). A focus on time has been intermittent but has focused on different scales such as the local in everyday life, to the international scale on topics such as geopolitics (Kilnke, 2013). Although some geographers, such as Merriman (2012) argue that geography has an 'obsession' with time-space, the reality is that it has been the opposite, whereby, for the majority of geographical literature, time is used in the background for spatial analysis. Contemporary theorisations of time and space in geography share the following features: the integration of time and space; the co-production of time and space; the unruliness of time-space; and the porousness of time-space (Gregory, 2009: 709). The final two features highlight the difficulty of both empirically and theoretically engaging with time (Lefebvre, 2004). It highlights the difficulty to conceptualise time, as well as contain it within a single theoretical framework.

This thesis also follows these features of time and space to explore some of the multitudes of temporality that has been exhibited. However, with respect to time, it does not reproduce some of the strong constructivist views expressed by the authors above. A part of this has been due to the interchangeability of the terms time and temporality have traditionally had in geography. For this study, time, for all intents and purposes, is unchangeable through human interaction. Conversely, temporality, or the perception of time, can be changed and influenced by outside actors. The chief form of temporality this study focuses on is the temporalities of capital; it will highlight how international temporalities of the hydrocarbon sector have interacted with the domestic political drivers at different scales.

2.2 Materialities and Imaginaries

The central themes to this thesis are natural resource temporalities and their interaction with state and non-state actors, with a focus on resource nationalism. It is noted that the term 'resources' can be viewed as 'troubled term' (Bridge, 2014: 119). 'Natural resources' as a term has been contested. The discussion of what constitutes a resource has been central to discussions of materialities (Richardson and Weszkalnys, 2014). This has often centred around the level of social interactions and what is considered a resource. 'Realists' understand resources are something that does not change. For example, Barbier, a resource economist, views resources as 'fixed endowments' that are 'provided in varying amounts freely by nature and geology, and that are distributed randomly across regions and countries' (Barbier, 2011: 6). In this instance, natural resources are static, not just in location, but in terms of materiality.

Despite the claim by Barbier that resources are static endowments, social interactions with the material of natural resources have occurred since antiquity (Schoenberger, 2011). Critical geographers challenged the realist position, instead viewing resources as something which are created through social processes. An early example of this comes from Zimmerman, who argues that resources are relative through both the demands of society, and people's ability to exploit the environment. For Zimmerman, the physical structure or chemical composition of a mineral are not enough to classify something as a resource, but rather it becomes a resource due to the mineral possessing a specific function *and* society having the power to utilise it in an achievable manner (Zimmermann, 1933). In essence, 'resources are not, they become' (Zimmerman, 1933).

The question of whether nature is transformed into a resource depends on the social needs and practises in society at that given time (Harvey, 1996). In this respect, demands from the 'economy' is central to the conversion of natural resources into commodities, and these transformations are full of contradictions and paradoxes (Bridge, 2009). Discussions of materialities has extended be a critique to the 'resource curse' thesis, which has traditionally seen natural resources as money, and highlight how resources can shape other forms of the curse, such as conflict (Le Billon, 2001).

The view that social interactions and demands shape what natural resources are has also been shared by anthropologists, who (unsurprisingly) place people central to the discussion of what makes a resource. For example, Ferry and Limbert define resources as 'objects and substances produced from 'nature' for human enrichment and use' (2008: 3).

This has not been limited to just materials extracted from the ground, but also knowledge, diversity, and documents. In essence, materialities are 'a series of arrangements of substances, technologies, discourses, and practises deployed by different kinds of actors' (Richardson and Weszkalnys, 2014: 16).

Alongside materialities of natural resources, this thesis focuses on imaginaries. Specifically, two forms of imaginaries: resource imaginaries and nationalism. Imaginaries play a core part of the construction of nationalism and the blending of ideology and territory has made geographical research into nationalism a fertile field (e.g., Knight, 1982; Penrose, 2002; Murphy, 2010). The ideology of nationalism is intrinsically tied to imaginaries and territory.

Within human geography, imaginaries have primarily been used as an analytical tool to research how territory and place have been utilized to construct a discourse of a 'nation', with a particular focus on territory. This has both been researched internally and externally; looking at the ways nationalism is constructed and reinforced internally within the state, Benedict Anderson (1983), proposed the concept of 'imagined communities'. Anderson's argument rests on the fact that at the heart of any nation is a sense of nationalism which is imagined or constructed, with members that have never met one another before sharing the common image of the nation that has been bounded through mass communication and language. This image both binds the community within the state and territory and excludes others. One of the core conceptualisations of contemporary research on imaginaries has been the acknowledgement of multiple temporalities that can exist within them (Gaonkar, 2002).

The materialities of resources in turn have shaped the imaginaries of what resources can do for states and communities alike. These resource imaginaries have often been interlinked with temporalities, either directly or indirectly: as Ferry and Limbert discuss, resources, be it natural or otherwise, can frame time in either the past, present, or future in certain ways. This can be best seen at the national level, with the creation of a glorified past, in the form of origin myths (Ferry and Limbert, 2008) and tempering expectations of the future without resource revenues (Limbert, 2008). Resource imaginaries can shape visions of the future for economic development, as Childs and Hearn (2017) argue that in Ecuador and Ghana, natural resource use for national development has been utilised for a long-term development vision for the former, and the latter has used the past to legitimise the nation building project and nationally controlled resources. This is also seen in lithium mining in Chile, Argentina and Bolivia, whereby utilising lithium beyond export in science, technology

and new industries has created a sociotechnical imaginary to create a wealthier and more prosperous nation (Barandiarán, 2019). These materialities have also led to constraints of the imaginaries of what natural resources can provide (Kohl and Farthing, 2012).

Infrastructures are often included in discussions of natural resource materialities and imaginaries. In the case of hydrocarbons, there has been a considerable amount of research on hydrocarbon infrastructures and their socio-economic effects. Infrastructures are 'built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space' (Larkin, 2013: 328). Yet they are often more than the sum of their parts, and can hold sovereign, or symbolic meaning and are often closely tied to questions of identity and nationhood (Lahiri-Dutt, 2014). At their core, infrastructures facilitate imaginaries and materialities 'at scales greater than their elements' (Boyer, 2017: 174). In the case of oil and gas, the associated infrastructures have been noted for their social and economic interactions with the state (e.g., Barry, 2013).

Mitchell's seminal book *Carbon Democracy* (2011) is one such example; the core of the thesis lies that the materiality of the resource has influenced the infrastructures created around them. For example, coal is a big, heavy rock that must be dug up from the ground, and during the industrial revolution had to be transported by train. Mitchell argues that the materiality of coal, and the accompanying infrastructures required to accommodate its materiality, were instrumental to the progression of democracy and labour rights. This is due to the fact that the labour intensiveness of the coal mining allowed for strategic chokepoints, like mines, railways, and dockyards, which if strike action were held, would cripple the energy infrastructures of the nation. This contrasts with the supply chains of oil. Being a viscous liquid that is pumped out of the ground using machinery and often transported across the world through pipelines, refineries, and large tankers, has ensured that the industry lacks the reliance on labour as seen with the coal industry, with less vulnerabilities to both the state and capital from labour action. The core of Michell's work is the way that materialities, which have influenced infrastructures, which have in turn influenced social processes, chiefly the democratic and labour forces.

In this respect, while the definition of a natural resource has been contested, it ultimately rests on the social use and demand of a material that makes it a resource. The materiality of natural resources in turn fuel imaginaries of what that resource can do for a nation's economic development. As shown above, these resource imaginaries can alter the temporalities of both the past and the future. Furthermore, this materiality is not just limited

to the resource itself, but also accompanying infrastructures that are required to extract and transport the resource to markets.

2.3 Resource Nationalism and Local Content

Discussions in this thesis centre around increased increase state intervention in the Tanzanian hydrocarbon sector, often described as 'resource nationalism'. For Tanzania, one of the justifications for these policies has been that there has been a lack of economic development that country has had from extraction (Poncian, 2019b). When discussing development within this thesis, it is often in the form of economic development. Economic development has traditionally been ill-defined, and 'has meant all things to all men and women' (Arndt, 1989:6), and should not be confused as simply economic growth (Feldman and Storper, 2018).

This thesis understands economic development as 'activities that expand capacities to realise the potential of individuals, firms, or communities who contribute to the advancement of society through the responsible production of goods and services' (Feldman *et al*, 2016: 18). As mentioned in the introduction of this thesis, this thesis focuses on the 'immanent' process of development, whereby development occurs as a penetration of capitalism. This is particularly applicable to the Tanzanian context, as this thesis, whose strategies in the hydrocarbon sector have attempted to expand the wider economy through greater ties and training with international firms.

Renewed focus on resource nationalism has provided a variety of definitions for, and characterisations of the term. Often this term has been used to stigmatise policies that are a threat to extractive and neoliberal interests. One of the major issues of pro-market resource nationalism has been the lack of attention to *nationalism* in resource nationalism. Instead, the term has been used for a 'descriptive value' with 'little analytical purchase' (Pryke, 2017: 474), particularly by pro-business press to bring attention to state intervention in the extractive industries. Here geographers and development studies scholars have looked to place more emphasis on the nationalism aspect of the term, as well as explore the internal drivers and factors that aid in the construction of resource nationalisms (e.g., Childs, 2016; Koch and Perreault, 2019).

The multitudes of definitions have often reflected the interests of organisations or authors. For example, the United Kingdom's Department for International Development has defined resource nationalism as 'anti-competitive behaviour designed to restrict the international supply of a natural resource' (DFID, 2014b: 2). A definition that emphasises the

negative effects of resource nationalism on international markets is hardly surprising from a UK government department that which is a heavy importer of natural resources and a strong proponent of free markets.

Other developmental agencies have been hostile to resource nationalism; writing for the International Institute for Environment and Development, Ward (2009) looks to place resource nationalism as the antithesis of economic liberalisation, going so far as to label resource nationalism as 'resource privatism'. Within academia, Stevens (2008), has continued this pro-investment stance, stating that resource nationalism has two components: the limiting of the operations of private IOCs, and asserting a greater national control over natural resource development. What these definitions all have in common is a focus on the negative aspects of resource nationalism for international corporations and economic liberalism. They look to present the core of resource nationalism as being hostile to foreign, particularly western, capital.

Among other definitions the most simplistic definition comes from the International Energy Forum (2006), which defines resource nationalism as 'nations wanting to make the most of their endowment'. It is worth noting that the IEF contains OPEC member states, and Russia and China, states that have participated in resource nationalistic policies. Offering an African definition, the Southern African Institute of Mining and Metallurgy has defined resource nationalism as:

> 'The desire of the people of resource-rich countries to derive more economic benefit from their natural resources and the resolution of their governments to concomitantly exercise greater control of the country's natural resource sectors' (Soloman, 2012).

What is noticeable about this definition is the inclusion of a greater share of resource wealth for the general populace. This is a common complaint in southern African countries such as South Africa and Zimbabwe, where calls for the indigenisation of the mining industry have occurred against settler colonialism (Burgess and Beilstein, 2013). Current definitions by actors in the global north, therefore, have been shaped by the negative effects these policies have on investment. Conversely, the one African definition provided has been influenced by unique processes, such as indigenisation, that may not be applicable to a wider global definition.

Critical scholars have examined resource nationalism in a different manner than pro-business interests. Such scholars have argued that rather than a rapid change, resource nationalism continues some of the characteristics of neoliberal extraction. Resource

nationalism is a post-neoliberal development model which 'retain(s) elements of the previous export-led growth model whilst introducing new mechanisms for social inclusion and welfare' (Grugel and Riggirozzi, 2012: 1). In this respect, modern day resource nationalism does not seek to replace the roles of IOCs outright, but rather seek greater economic benefits from the sector. However, when disputes arise between extraction (either from the state or the private sector) or local communities, the government has traditionally looked to side with the former. This has led to some to view resource nationalism a continuation of 'extractive imperialism' (Veltmeyer, 2013).

Resource nationalism has also undergone a recent categorisation process from scholars. Risk analysts Bremmer and Johnson (2009), argue there are four variants of resource nationalism: 'revolutionary resource nationalism', which contains the full nationalisation of a resource industry; 'economic resource nationalism', where states look to negotiate a larger share of revenues from IOCs; 'legacy resource nationalism' whereby states that have typically had an historical connection to resources; and 'soft resource nationalism', which, the authors argue, is similar to economic resource nationalism, but ambiguously claims that these states avoid 'arbitrary tactics' (Bremmer and Johnson, 2009: 152). It is worth noting that Bremmer and Johnson put western countries in this category, providing a clear geographical distinction of 'soft' resource nationalisms of the global north, and the 'hard' resource nationalism of the global south.

The definition of 'hard' resource nationalism in contemporary times is similar in some respects to the resource nationalism seen during the 1960s and 1970s with the nationalisation of extractive industries, particularly oil operations. With a few exceptions (e.g., Venezuela and Bolivia. For a comparison study, see Koivumaeki, 2015), state intervention in the extractive sectors has been more modest. Alongside nationalisation, 'hard' resource nationalism has been viewed seen in the cancellation of existing contracts or stringent demands in negotiations. 'Soft' resource nationalism is more nuanced, and includes political strategies that comprise changes to regulation, tax increases and restrictions on exports, and can be found throughout the world. This has led to a balanced debate on the role of resource nationalism in states such as Canada and Australia (Bremmer and Johnson, 2009; Wilson, 2011). The same balance to the debate on resource nationalism in the global south, particularly within Africa, is lacking. With the exception of South Africa (Andreasson, 2015), there has been little reference to potential 'soft' resource nationalisms in Africa.

Wilson (2015) adds greater political context into his categorisation, acknowledging that resource nationalism is not just an economic strategy to increase benefits, but also a political strategy to strengthen a governments support and power. Wilson separates resource nationalism into rentier resource nationalism, developmental resource nationalism and market-based resource nationalism. This categorisation has allowed for a more effective separation of the motives of developing states that look to pursue resource nationalism into rentier resource nationalism and developmental resource nationalism. This allows for a greater understanding of the motivations behind such policies when compared to Bremmer and Johnson's (2009) categorisation. This categorisation has allowed for a more effective separation of the motives of the governments that look to pursue such policies. However, in the survey of twelve states that forms the empirical underpinning of Wilson's research, only one African country, Guinea, is represented.

These categorisations allow for a more nuanced understanding of the motivations of resource nationalist policies. However, they still lack an understanding of the drivers that push governments to pursue such policies. For example, Wilson's (2015) categorisations allow for a visibility of the goals of the policies, but not the internal power structures that push the government towards a certain policy, either for developmental reasons or survival.

Alongside the broader policies of resource nationalism has been the introduction of local content into the extractives sector. A part of the difficulty in exploring the locality of local content is that the 'local' is rarely defined or treated as synonymous with the national. Adding to this issue is the fact that defining local content has not been a simple task (Tordo *et al,* 2013). The *Financial Times* (2019a) has provided a rather simple definition where local content is '[w]hen a foreign company makes products in a country, the materials, parts etc. that have been made in that country rather than imported.' Focusing more on the developmental potential of local content policies, the World Bank (2016), defines local content as the 'aim to leverage the extractive value chain to generate sustained and inclusive growth through economic diversification and employment opportunities.' What these definitions have in common is the focus on the interaction between the national state and the international corporation. In this respect, the local is synonymous with the national, with the focus of the definition emphasizing the restrictions on importing goods and services, rather than the limits and provisions of the 'local'. While these definitions provide some insight into what local content can do, they undersell the wide-ranging aims local content policies have. This has been highlighted by Nwapi, who understands that local content policies are:

'Undertaken to reduce inequalities faced by domestic companies in relation to foreign companies, increase the participation of the national industry in specific sectors of economic activity, improve national technological development, create job opportunities for nationals to improve their personal income, support economic diversification, promote intersectoral linkages and reduce overdependence on one sector by enhancing the value-creating capacity of a particular sector, and to enable domestic companies to compete regionally and internationally.' (Nwapi, 2015: 191).

While not a definition *per se*, it nevertheless highlights the comprehensive scope of local content policies, particularly when compared to the other definitions of local content presented in this thesis.

3 Temporalities of Resource Governance

Literature on the extractive industries has tended to focus on the spatial (e.g., Ferguson, 2005). The focus on the spatial of mineral and hydrocarbon extraction has been across disciplines and methodologies. On the one hand, this is logical; unlike other economic activities such as agriculture[15] or manufacturing or factors of production such as labour and capital, mineral and hydrocarbon extraction is spatially fixed. While control of these mineral and hydrocarbon resources can be contested between capital and states (Capps, 2012), the location of minerals and hydrocarbon themselves are not. Space has become a defining theme of extractives literature, and as this section will demonstrate, literature utilising a spatial focus on extractives has resulted in fruitful engagements with how natural resources interact with social processes across different spatial scales. The growth of literature focusing on extractives has been tied to the growth of the extractive industries itself (Bebbington *et al,* 2013), and thus, there has been greater research on natural resources during the commodities super cycle of 2000 to 2014.

3.1 SAPs, 'Good Governance' and the Resource Curse

In 1973, OPEC proclaimed an oil embargo targeting nations that were supporting Israel during the Yom Kippur War. While not the intended targets for the oil embargo, the rise in oil prices 'severely imbalanced their international payments accounts, knocked African development plans out of their traditional moorings, and nearly drowned the new states in a sea of debts' (Johnson and Wilson, 1982: 211). In Africa, the long-term economic result of the oil crisis was, that by the 1980s and 1990s, many states approached the Bretton Woods

[15] This refers the transport of seeds that can be grown in the right conditions regardless of its original source. Take for example sugarcane, which originally came from South-East Asia, is now grown across tropical regions in Africa, South America, and the Caribbean. This cannot happen with hydrocarbons and minerals; they are spatially fixed.

institutions for loans to bailout their economies. These policies added considerable neoliberal conditionalities, which included liberalisation of trade, privatisation, and reduction of barriers to foreign investment. An overall reduction in the state, which had become vilified in Africa (Mkandawire, 2001), was the goal of these policies in the hope that this would allow for increased investment, production, and trade to boost the long-term health of the recipient countries economy (Stiglitz, 2002).

The extractive industries were central to these policies. Neoliberal reforms of mining legislation mirrored wider policies of low tax regimes to encourage foreign investment, privatisation of state-owned enterprises in the hope to attract greater FDI (Emel and Huber, 2008). Weakening states bargaining power further with international extractive companies was the fact that these changes were conducted in the background of low commodity prices during the 1980s and 1990s.

Coinciding with SAPs in the 1990s was an increased discussion of the poor economic performance of resource abundant states. First termed by Auty (1993), the 'resource curse', explores the lack of success natural resource extraction has had for economic development. The resource curse appears to be paradoxical in nature. Le Billon (2005) has highlighted five central characteristics of the curse: poor economic growth, low standards of living, an increased risk of civil war, high levels of corruption and authoritarianism. Discussions and debates over the resource cruse have become a mainstay for extractives literature. The core argument of the curse rests on the fact that developing countries well-endowed with mineral resources perform poorly when compared to similar countries that lack natural resources. While it started out as an economic theory (Auty, 1993; 1994), the resource curse soon expanded into explaining socio-political issues, such as explaining democratic deficits (Ross, 2001) and increased chances of violent conflict and separatism (Collier and Hoeffler, 2005).[16]

The resource curse also has become a mainstay for many development agencies (e.g., Overseas Development Institute, 2006; Oxfam, 2009). This was particularly evident during discussions of governance (Mehlum *et al*, 2006). It has now become customary that if developing nations discover natural resource deposits, that it will come with warnings from western development agencies (e.g., Oxfam, 2009), multilateral agencies (e.g., IMF, 2018), and the popular press (e.g., The Guardian, 2013), of the potential for the resource curse to

[16] This has also been incorporated into another debate over the origins of civil conflict: the greed vs grievance debate. As the origins of civil wars are not covered within this thesis, there is insignificant space for a discussion in this thesis of the debate. For an overview, see Collier and Hoeffler (2005), and Keen (2012).

manifest. This has been particularly true for hydrocarbons. Central to this has been the way that natural resources enhance opportunities for corruption (Busse and Gröning, 2013), as well as the inability of a state's civil service to handle fiscal booms that come with the sector (Tornell and Lane, 1999).

There is a general consensus that oil has both eroded the state yet it was also ensured its survival; in a substantive study of the effect oil has had on the Gulf of Guinea region, Soares De Oliveira (2007a), has argued that oil, has hollowed out the state to the point of failure, and has only persisted because of hydrocarbons This argument is also prevalent at a national scale in the Gulf of Guinea, with similar arguments being made about Angola (Soares de Oliveira, 2007b), Nigeria (Watts, 2004) and Equatorial Guinea (McSherry, 2006). Oil has come under special scrutiny due to its apparent effects on state and society (e.g., Le Billon, 2001; Collier and Hoeffler, 2005; Watts, 2009). This work, both from a geographical and political economy perspective, has often focused on the violence and the 'unending crises of petro-states in Africa' (Soares de Oliveira, 2007a: 61). As mentioned in the introduction of this thesis, using the resource curse framework, Ross (2001), has argued that oil uniquely shapes governments by the way of three casual mechanisms: a rentier, repression and an (anti) modernisation effect which obstructs democracy and contracts non-oil parts of the economy.

As highlighted above, the resource curse has chiefly focused on governance issues, with little discussion of temporality. One such example of the incorporation of temporality into the resource curse has been through the speculation over the potential existence of natural resources. This is because resources can also produce imaginaries of the future and alter and shape behaviours of actors in response to the speculation. Frynas *et al* (2017) argues that both São Tomé and Príncipe (STP) and Madagascar have displayed effects of the resource curse, chiefly regarding economic and governance issues, even though neither country is a significant mineral exporter.[17] Aiding Frynas *et al's* analysis has been research conducted by Behrends (2008), who has argued that prospects of oil, that have not yet been confirmed, have fuelled conflicts on the Chadian-Sudanese border.

Gisa Weszkalnys work on temporalities in the hydrocarbon section in STP hydrocarbon sector demonstrates the most consistent and strongest work on how the potential of oil has shaped the temporalities of the both the state and society (e.g., Weszkalnys, 2016). In

[17] STP still does not produce or export oil, while Madagascar does provide some form of mineral export, particularly in gemstones.

general, Weszkalnys work has focused on the creation of different imaginaries of the future. It has highlighted the frictions created between differing imaginaries; on the one hand, there is the concept of a financial windfall created from the materialities of oil and the world markets that enable it, on the other hand, there has been attempts by both governments and NGOs to both warn about and counter the resource curse. Both these issues have created differing imagined futures, and these have differed across class lines, with the former imaginary amongst the STP working class and the latter found with the STP middle class.[18]

Much like Tanzania, STP has been awaiting the arrival of oil production, but unlike Tanzania, the country has yet to discover considerable hydrocarbon deposits and is currently not producing any oil or gas for international export or domestic consumption. The lack of success towards 'first oil' has led to 'pauses' and 'gestures' in the hydrocarbon sector, whereby technology, investment and exploration continues although little else is moving or found (Weszkalnys, 2015). This lack of production has created a temporal imaginary of both a future financial bonanza and a 'not yet' disaster (Weszkalnys, 2014). Attempts to manage these differing future imaginaries has come from initiative, projects, seminars, and workshops, and has led to a class divide, with the middle class viewing the delay of oil as a 'salvation' (Weszkalnys, 2008: 480). This 'not yet' disaster has been created through concerns over the resource curse, which has emerged in various guises (Weszkalnys, 2011), and has been aided by the ability to differentiate between temporalities implied by waiting, speculation, and anticipation. Weszkalnys argues that the result of this is STPs future has largely been predetermined between two extremes of success and failure.

The resource curse thesis has not been without criticism (e.g., Brunnschweiler and Bulte, 2008). Chief among these has been the deterministic nature the theory has been applied, particularly to African states (Rosser, 2006). On the one hand, the focus on the negative effect's extraction has brought upon African nations is not surprising, as resource abundant states such as Angola, the Democratic Republic of Congo and Nigeria have seen considerable violence that was fuelled or funded by resources during the 1990s and 2000s (Frynas and Wood, 2001; Watts, 2004). Yet this predisposition to focus on the resource curse has affected the wider discourse on African extractives in other states. Critics of the resource curse thesis point to Botswana (Sarraf and Jiwanji, 2001), as an example where there is little evidence of

[18] Of course, both imagined futures could come true at the same time; oil producing states in Africa have both experienced financial windfalls but at the same time the majority of society has seen little material or financial benefit from it, instead suffering from the effects of the 'resource curse'.

the curse. Meanwhile, Ghana has been used as an example of an African state that should be resilient to the resource curse (e.g., Kopinski *et al,* 2013; Heilbrunn, 2014).

3.2 Resource Nationalism

SAPs proved to be a failure in Africa (Konadu-Agyemang, 2000; Watts, 2006). Since the 2000s, inspired by alternative developmental models from Latin America and Asia, there has been a paradigm shift towards an increase in state involvement in development (Gore, 2000; Hickey, 2013). This shift has also occurred in the extractive sector (e.g., Nwapi and Andrews, 2017; Ovadia and Wolf, 2018; Saunders and Caramento, 2018). With rising commodity prices and dissatisfaction with the neoliberal extractive regimes, greater state involvement in the extractives sector, also known as 'resource nationalism ', has experienced a renaissance both within oil producing states and in academic study.

The failures of SAPs to create substantial and widespread development, combined with new paradigms of development that involve greater state involvement and rising commodity prices during the 'commodity super cycle', has driven national governments both in Latin America and in Africa to increase their involvement in the extractive industries. This has coincided with political changes towards governments approach to development in the global south. Whilst contentious, many factors, such as the rise of China and the growth of national extractive industries, have contributed to this paradigm shift in development (Hickey, 2012).

These new models of hydrocarbon governance have been described as 'neo-extractivism' in Latin America (North and Grinspun, 2016) and 'resource nationalism' in Africa (Andreasson, 2015). While there has been a geographical separation of the term between Latin America and Africa, there are considerable similarities between the resource nationalism of the two continents; much of literature exploring resource nationalism has focused on Latin America (e.g., Veltmeyer, 2012; Burchardt and Dietz, 2014; Lyall and Valdivia, 2019), in particular Bolivia (e.g., Kohl and Farthing, 2012; Young, 2017; Laing, 2020a).[19] In Africa, resource nationalism has not taken on the character of the oil nationalisations of the 1960s and 1970s. Rather it has taken on more of a legalistic and

[19] The focus on Latin America has been due to the fact that the continent has seen privatisations of extractive assets in Argentina, Bolivia, and Venezuela. The focus on Bolivia has been because there has been friction between President Evo Morales' goals of nationalising resources for a distribution of wealth to the poorest in the country, and the goal of establishing a 'plurinational' state, where the state is supposedly indigenised, rather than the recognising indigenous peoples. While on paper the Bolivian state is supposedly supportive of indigenous rights, these rights have often been secondary when issues around extraction arise (e.g., Kohl and Farthing, 2012; Laing, 2020a).

contractual approach, with policies highly dependent on the national and regional context. Resource nationalism in Africa has been characterised by indigenisation programmes (e.g., Andreasson, 2010), local content requirements (e.g., Ovadia, 2016b; Hansen *et al,* 2016) and changes in extractive contracts, taxes, and royalties (e.g., Ward, 2009).

Bolivia has been a prominent example within research into the interaction of natural resources and the state and focuses on narratives on the state's relation with both the past and the future. Its history of mining of silver and tin during the colonial era has aided the construction of Bolivia as a 'mining country' in the present (Pellegrini, 2018). Today, gas has become the resource of note, and has become a core part of the country's developmental discourse, becoming a magic bullet of sorts to the country's problems (Perreault and Gabriela, 2010).

Literature looking to explain the phenomena of resource nationalism has looked to either inadvertently, or deliberately, incorporate temporalities in their analyses. One of the most prevalent theories of resource nationalism has been Vernon's OBM (1971). This model follows a linear model of extraction, whereby the power relations between states and MNCs differentiates over time. At the beginning of exploration and development of the sector, power is centred in MNCs due to the capital, technology and infrastructure required to extract, transport, and refine minerals and hydrocarbons. Over time, as infrastructure investment is made and cannot be moved, and state expertise in the sector is enhanced, this power shifts towards the government as MNCs become 'hostages' to state interests, particularly in developing countries (Vernon, 1977). This model has been described as the 'most accepted paradigm of host country – MNC relations in international political economy' (Kobrin, 1987: 610), and has been utilised in contemporary resource nationalism research, particularly from a pro-market perspective (e.g., Stevens, 2008; Vivoda, 2009). However, the original model did not directly refer to rising commodity prices as a driver towards resource nationalism, neither did it include the ideological component behind the phenomenon (Pryke, 2017).

Vernon's work inadvertently undertakes a linier approach to temporality. It looks to present the fluctuations of power relations between the state and MNCs over the sector lifecycle over a period of time as the driver of resource nationalism. It utilises time in a deterministic fashion, suggesting that power changes in one direction over the lifecycle of the mines and wells present in the state. This discounts that the government may wish to attract more than one investor or repeat investment which many projects require.

Furthermore, the model excludes other actors from state-MNC relations, such as NGOs, local communities, and other states. Alongside this, technological developments in the sector, such as deep-water extraction, fracking, and extraction of 'unconventional' deposits of oil, chiefly tar sands, are primarily led by MNCs. Hence, while the model suggests a continuous and gradual change in power over time, such developments are not accounted for in OBM.

Unlike Vernon's OBM, Wilson's petro-political cycle (1987) focuses on the politics behind the commodities cycle, with a particular focus on the price of oil. The petro-political cycle theorises that the politics behind oil directly corresponds to boom-and-bust phases of the market; at its core, the petro-political cycle suggests that when prices are high, sellers and governments gain leverage over IOCs, with the roles reversed when oil prices fall. For Wilson, the cyclical nature of the commodities market is central to understanding the power relationship between the host state and IOCs that operate in the country.

Such a model of using market cycles has resurfaced during the commodities boom, and market cycles has seen as the dominant driver for the renaissance of state involvement in the extractives sector. This has often been combined with the OBM model, incorporating rising prices into the model's original analysis (e.g., Wälde, 2008; Joffé *et al*, 2009). Pro-market scholarship has argued that resource nationalism has come back into the fore because of high commodity prices, which also allows increased bargaining power of states as there is greater competition for deposits. Bremmer and Johnson (2009), for example, argue that resource nationalism in mineral and natural gas sectors will subside with declining commodity prices.

The experiences of Tanzania in the gold and natural gas sector, suggest that this argument was premature. In a slightly different vein and taking a more balanced view, Katz-Lavigne (2017) argues that with rising prices, a 'renegotiation window' had opened for African states to improve deals that had been made during the time of low commodity prices. Once again, the cyclical nature of commodity prices is central to this analysis and suggests that this window has now closed with failing commodity prices. While increased prices played a role in rising intervention in the extractives sector, there was also the reaction towards neoliberal policies in the sector (Childs, 2016; Poncian, 2019a), and these were legitimised on the continental level with the *Africa Mining Vision* (2009) (Hilson, 2020).

This pro-market, or 'realist' (Koch and Perreault, 2019) literature is global in scope. Often seen as an unwanted by-product of high commodity prices, the cyclical nature of the global market has seen as the key driver behind resource nationalism. Furthermore, much of

this literature focuses on a simplistic state vs. MNC narrative, discounting either non-state actors, or the internal pressures that may arise for a state to push for greater involvement in the extractives industry. The result of this has been economic determinism; the commodities cycle and the OBM model suggest a shift in power towards states when prices are high and industries are mature, and in theory, this is where there is a shift towards resource nationalistic policies.

Literature surrounding resource nationalism is now changing, with the term now being seen as a 'discourse applied to political and economic thinking about how a state and its population should manage and distribute profits derived from natural resources' (Koch and Perreault, 2018: 1). Contemporary literature has presented a more nuanced understanding of the drivers of resource nationalism. This change has largely been driven by geographers and development studies scholars (e.g., Childs, 2016; Haslam and Heidrich, 2016). Child's (2016) contribution has been significant in noticing the narrowness of the debate and the pro-market tone of resource nationalism discourse.

Geographers in particular have explored the internal drivers and factors that aid in the construction of resource nationalism(s). There has been an emphasis on the spatial aspect of resource nationalism, and to understand the domestic and sub-national politics that can lead to such policies (e.g., Koch and Perreault, 2018). Some of the strongest literature attempting to understand the pollical drivers of resource nationalism has been focused on Tanzania; Jacob and Pedersen (2018) argue that resource nationalism policies in the country begun before the recent passing of the 2017 legislations. Rather, it had begun to shift with the 2010 Mining Act and the 2015 Petroleum Act. Both these acts were passed before the general election in their respective years as a counter to a more effective electoral opposition who had been using grievances over the extractive industries to build popularity. In this respect, the driver for resource nationalism in Tanzania has been electoral. Poncian (2019a) has furthered this by arguing that the 2017 legislation should be understood in the context of its socialist history. Considering the poor implementation of the SAPs, the 2017 legislation has been used to both garner popular support and for Magufuli to liken his image to Nyerere.

New literature on resource nationalism has also engaged with the temporalities behind it. Rather than viewing the phenomenon as a by-product of commodities cycles, new literature has explored the possibility of a resource nationalism cycle. For much of this literature, this cycle has been driven by economics. Offering a pro-market view and utilising the OBM model, Stevens (2008) argues that resource nationalism is a cyclical phenomenon.

While there is a degree of acknowledgement of internal factors that led to support of policies deemed resource nationalism, particularly grievances of citizens of the countries examined, central to the analysis is rising oil prices and how they shift the OBM towards states. Taking a more neutral stance, Haslam and Heidrich (2016) focus on the extractive industries in Latin America and argue that there is a privatisation-nationalisation cycle where there is a liberalising phase, regulation phase and a renationalising phase. Once again, there is more of an acceptance of domestic factors in analysis, particularly around the 'pink tide' in Latin American countries and how they looked to utilise natural resources for development.

Unlike the authors mentioned above, Kaup and Gellert (2017) have placed global power struggles as the driver of resource nationalism. It argues that capital undergoes material intensification followed by financial intensification as the basis of spatial expansion of capitalism. Using Bolivia and Indonesia's resource management in the 1970s and the 2010s, they argue that the material intensification of global hegemons, the USA, and the USSR in the 1970s, and then the USA and China in the 2010s, has allowed states the opportunity to pursue resource nationalism policies as states are able to play these superpowers against one another.

What this contemporary literature looking to understand the drivers of resource nationalism suggest that the drivers are cyclical in nature, and bar from Kaup and Gellert (2017), they tend to focus on global economic factors as the driver for resource nationalism. It is also worth noting, that the majority of analysis above has tended to focus on Latin America and the Middle East, the centre of contemporary and historical nationalisations of extractive sectors, respectively. For all these models and explanations, the global and national scale are central to their analysis. While there is some inclusion of domestic factors, such as increased public demand for a greater share of the resource wealth, these factors are often seen as monolithic in nature and lack political and economic nuance for their demands. On the other hand, country-specific and domestic analysis of the drivers of resource nationalism lack of the temporal angle, bar from the acknowledgement of high commodity prices, but has provided more of a focus on internal political reasons why such policies have provided to be popular.

Temporalities at the global scale, in particular the commodity cycle, as well as global power struggles, have shaped the debates around temporality and resource nationalism. However, these literatures have neglected the role of internal politics behind such policies

and discourses. Geography has begun to delve into the internal dynamics of resource nationalism to an increasing degree. Adding to this literature is one of the goals of this thesis.

4 Temporalities of Extraction

As the above section demonstrates, there has been considerable scholarly examination on the nature of resource governance and how it influences both extraction and wider social, political, and economic impacts. Yet the impact of hydrocarbons goes beyond resource governance. The inclusion of temporality has primarily come in the form of speculation over resource extraction, and one of the main temporalities that guide MNC strategies and resource exporting states economies: the commodity cycle.

4.1 Imagined Futures

Resource imaginaries have often been interlinked with temporalities, either directly or indirectly. As Ferry and Limbert (2008) discuss, resources, be it natural or otherwise, can frame time in either the past, present or future in certain ways. This can be best seen at the national level, with the creation of a glorified past, in the form of origin myths (Anderson, 1983), or tempering expectations of the future without resource revenues (Limbert, 2008). The nature of the extractive industries, particularly in the early stages of exploration, conjures up images of vast potential wealth under the ground. Of course, the reality has often been different. Hence, one core theme that has occurred from natural resource literature is the future of extraction. This is not concerned with the future of the extractives industry as a whole, but rather how the exploitation of natural resources shifts social and political dynamics of communities, companies, and states alike.

Much of the research exploring imagined futures of the extractives industry has come from anthropologists (e.g., Ferry and Limbert, 2008; Engwicht, 2018). However, this has begun to change. Alongside arguing for a greater inclusion of time in geography, Childs (2020), discusses the temporalities of deep-sea mining in Papua New Guinea. He argues that the geopolitics of deep-sea mining can only be understood with an engagement of time as well as the more conventional understandings of space. This is due to the fact that both in historical and contemporary literature deep sea mining has been constructed as ‘resources of the future’ due to ongoing concerns of future resource scarcities, as well as the temporal-geological peculiarities that could affect future mining operations in the sea.

The negatives of extraction, either in the form of wider governance and societal issues explored in the resource curse, or environmental issues, either in the form of global concerns

over climate change or more localised concerns of chemical spill overs from mining activities, has led to a 'politics of time' in regard to protesting extractive projects (Mills, 2019). Kirsch (2014) argues that the politics of space is being augmented with a new politics of time, in which activists attempt to stop extractive activity before it begins. This is done with the mind-set that once mining projects have begun, they are difficult if not impossible to stop or reverse their effects. In this respect, the negatives of extraction have created futures deemed unacceptable by those living closest to the projects, and in an effort to control time, activists are looking to prevent the imagined future from occurring, often against MNCs and governments.

Much of the research into the imagined futures of extraction are of resources that are currently being speculated whether they will be extracted or not. In this respect, they engage with the imaginary of the resources, be it in a technical sense along a new frontier (e.g., Childs, 2020), or processes created to stop feared economic processes taking root (e.g., Weszkalnys, 2014). In general, bar from the onshore gas sector, this thesis is no different. As mentioned in the introduction of this thesis, the offshore sector has yet to enter production and therefore engaged with the imaginary of gas extraction in different forms. There has been one other aspect of extractive time that has been explored in considerable detail: boom and bust.

4.2 The Geographies of Boom and Bust

The boom-and-bust cycles of the commodities market have been a mainstay for both the global extractives industry and natural resource literature. This is both for quantitative disciplines such as resource economics (e.g., Carter *et al*, 2011;), and qualitative disciplines such as anthropology (Rodgers, 2015). Commodity cycles refer to the fluctuating price of the commodity in question, with highs considered 'booms' and falls in prices considered 'busts'. Demand for resources is cyclical, with a low-price elasticity of supply (Runge, 1998), creating potential price spikes related to under-supply, and extended price slumps when there is oversupply (Bowman, 2018). These supply and demand dynamics create the boom-and-bust cycle.

For states and MNCs, when the price is high, it is seen to be in the 'boom' phase, leading to greater revenues. For MNCs, it can also encourage exploration for new deposits in 'frontier' areas with potential deposits becoming economically viable. Conversely, when the price is declining (sometimes rapidly), then a commodity is in the 'bust' phase of the cycle, often leading to loss of earnings for companies and states, and job losses for those associated

with the industry, as well as a 'retreat' from fields that are no longer economically viable in the short to medium term. Due to this, it is one of the central temporalities of the global extractives industry, and price forecasts are central to project planning both at all spatial levels.

Booms in commodity prices encourage exploration in areas either with resource deposits that were previously considered to be economically unviable or encourage exploration into regions that have not traditionally been part of the 'energy map'. This is done with the expectation that prices will remain high enough to justify the capital expenditure of exploration and exploitation. The boom in prices during the commodities mega cycle, combined with technological innovations, particularly in deep sea extraction and unconventional hydrocarbon extraction, has also led to a reintroduction of 'resource frontiers'. MNCs and states have created resource frontiers in regions as in varied as the arctic (e.g., Powell, 2008; Dittmer *et al*, 2011), ocean spaces (e.g., Childs, 2020), and of course, Africa (e.g., Lee, 2006; Frynas and Paulo, 2007; Carmody, 2016).

It is worth noting that, while the term 'resource frontier' may be of common usage to MNCs and the business press, the term has been contested for the political connections the term has historically caused (Luning, 2018). However, the term is used commonly within pro-market literature (e.g., Collier, 2011; Deloitte, 2019), as well as critiques of MNC actions in the global south (e.g., Chalfin, 2010; Bryceson and Geenen, 2016). It is also a common term to explain the expansion of capital into regions that are poorly integrated into the global economic system (Tsing, 2003). Frontiers do not specifically mean a place or process, but rather an imaginative project melding both (Tsing, 2005). Considering Tanzania, and in particular, Mtwara, are on the global peripheries of both the global energy supply at global capitalism as a whole, this thesis will utilise the term 'resource frontier'.

While the whole continent, barring Nigeria and Angola, has been viewed as a 'resource frontier', one of the new regions that became a focus for exploration was East Africa (Anderson and Browne, 2011). The discourse over African resource frontiers have evoked the colonial past of the continent. The increased investment by MNCs and other states, particularly China, led to the phenomenon being described as a 'new scramble for Africa'. Critics have accused these authors of utilising a discourse that removes agency from Africans themselves over this new scramble (Skaten, 2017). This criticism is particularly apparent in the field of international relations, who have focused more on the great power struggle

between the US and China for natural resource access (e.g., Klare and Volman, 2006; Burgess and Beilstein, 2013).

Resource frontiers are intrinsically tied to both space and time. The connection to space is obvious: frontiers are geographical spaces and are created through a discourse of a wild, uninhabited land that is heavily influenced by the American west (Rasmussen and Lund, 2018). Of course, in both African and the American West, this land was inhabited. They are also equally created through temporalities of the extractive industry and capitalism. The boom and bust of commodities prices are central to markets, who buy and sell on actual and expected demand of a product. Hence, the temporalities of the boom-and-bust cycle aid the creation of 'resource frontiers' due to high commodity prices and technological advancement that make both exploration and potential resource deposits during the commodities super cycle.

The boom-and-bust cycles are central to the expansion of capitalism into new markets. Hence the creation of resource frontiers allows for an expansion of the temporalities of capital into new frontiers. In essence, boom and bust aid the facilitation of expansion into frontiers, and they also introduce boom and busts to the peripheral local economy. These cycles also cause capital to retreat from frontiers to areas where it is chapter and less risky to produce, and thus these resource busts have had considerable negative effects on poverty reduction in developing economies (Le Billon and Good, 2016).

Literature on resource busts have focused on the detrimental impacts on communities closest to the extractive site. The most prominent example of this is James Ferguson's *Expectations of Modernity* (1999), which explores the responses to the collapse of copper prices on the Zambian Copperbelt. Focusing on the imaginary of 'modernity', in particular the paternalistic care of workers and urbanisation that were expected with rising copper prices, Ferguson charters the collapse of the copper sector, and how it altered perceived modernisation in the industry where 'history seems to be running in reverse' (Ferguson, 1999: 13). In this respect, the boom of the mining sector in the Zambian Copperbelt brought with it expectations of modernity, which were taken away during the economic bust, leaving livelihoods shattered in the process. This work in particular challenges the linear concept of modernity, highlighting how global factors can rapidly change economic circumstances of those in the extractives sector.

Ferguson is not the only scholar to explore the economic hardships following a commodity bust. Breglia (2013) explores the impact of post-oil in the former oil producing

region of Campeche in Mexico. They argue that the loss of the oil sector has brought demodernisation to the region, as well as affecting other local industries that are not seen as tied to the hydrocarbon sector, such as fishing. Regarding temporality, the loss of modernity, either real or perceived, highlights both the imaginaries and the materialities of commodities; for states and societies alike, there is a perception that material wealth can fund economic development and modernity for a better future. A decrease in commodity prices, or the removal of the sector itself from the region, also removed such a vision of modernity that had been built around the extractive sector.

In comparison to space, temporality has been neglected by extractive literature. While minerals and hydrocarbon deposits are spatially fixed, the drivers for their extraction are economic; supply and demand cycles determine whether deposits become economical, demands from shareholders can push companies to expand further and further into 'resource frontiers'. This push for new sources of hydrocarbons and minerals drive the temporalities of other actors, both material and imaginary. These drivers are temporally uneven across the global economy. Due to the nature of markets, political and economic risk, and the ease of extracting resources, commodity markets make and unmake resource frontiers, influencing and changing imagined futures of those that live and participate in extraction in the process.

5 Conclusion

This chapter has unpacked geographical, anthropological, and political economy literature around temporalities and natural resource extraction. Temporality is underrepresented in social science literature as a whole, particularly in geography. This has, in part, due to the difficulty to effectively contextualise time, as well as the postmodern turn to space as a dominant mode of analysis. This has presented a gap in geographical literature whereby time, in all its different forms, has been underexplored and underutilised.

Research into extractives, particularly within less economically developed nations, has tended to focus on the resource curse. While the resource curse is disputed, it has nevertheless highlighted the wide-ranging effects an extractives industry can have on economics, politics, and society at large. Though there have been exceptions, resource curse literature has tended to include extractive temporalities in the background, usually as an example to how the volatility of the commodities market can severely affect revenues.

Compared to geography, natural resource literature has had a greater interaction with time, due to the influence of anthropology within extractives literatures, as well as dominant temporal drivers such as the commodities cycle. One such example is literatures exploring resource nationalism, with a historically a pro-market literature that is critical of state-involvement in extraction that has also utilised these temporalities for explanation for their theories. Considering the reframing of resource nationalism, and geography's role within that reformation, it has currently neglected the temporalities around the industry. It presents a gap in the literatures explored in this chapter to reintegrate time into resource nationalist research that more critical and less deterministic than its predecessors. It is within this gap this thesis seeks to fil and further knowledge to better understand both the temporalities of natural resource extraction and resource nationalism.

Chapter III: Methodology

1 Introduction

This chapter focuses on the methods utilised to obtain the data to understand the temporalities of the hydrocarbon industry. This thesis utilises fieldwork undertaken in Tanzania from July 2017 to August 2018 and utilised a qualitative research design. Specifically, it utilised semi-structured interviews, group interviews and documentary evidence. In terms of interviews, I targeted a range of people, from oil executives to villagers. In terms of documentary evidence, I targeted industrial, hydrocarbon and development strategy papers by various government agencies, and public and private documents from IOCs and domestic suppliers.

Other methods that could have provided a wider geographical scope, such as questionnaires, would have limited impact compared to a more direct and in-depth discussion with respondents of considerable expertise and experience. Furthermore, participant observation was not used due the focus on the politics of time at all spatial levels, and to do so would have to utilise continued and sustained access to IOCs, which would have considerable difficulty.

The original design of this research was centred around a comparative study between the hydrocarbon industries of Uganda and Tanzania, with a particular focus on the EACOP project. Before fieldwork started, I understood that Uganda has special research permits to enter these areas due to the political sensitivity of oil in the country. These permits have been noted by other academics as a long and difficult process (Van Alstine *et al*, 2014). During the Ugandan research permit process, it quickly became apparent that my application was taking a long time, even by the slow standards experienced by other researchers. I believe that this was a process of silent refusal, as emails were not being responded to and in my brief visit to Kampala, I was told to conduct the application online.

As I had a limited timeframe to conduct research for my PhD, I moved away from focusing on both Uganda and Tanzania and focused solely on Tanzania. The research permit process for Tanzania also took time to complete but repeat visits to COSTECH aided the process and I obtained the permit, alongside a residency permit to allow me to live in the country. This process took a long time, and I was constrained in Dar es Salaam while waiting for approval of the research permit.

This chapter is structured as follows: First it will explore the methods used in this study, their advantages and potential pitfalls that had to be countered during and after fieldwork. It also highlights events outside of my control that made my research challenging. Section three of this chapter explores the positionality of myself during the research process, as well as the use of a research assistant throughout my fieldwork. Following on from this is a discussion of the risks and ethics of this research, with an additional discussion on how mental health can affect research in the field. Section five concludes.

2 Methods

As mentioned in the introduction of this chapter, this research utilised semi-structured interviews, group interviews and documentary evidence. The interviews were conducted in person, and the gathering of documentary evidence was a mixture of documents in the field and online. There were a variety of reasons to choose these methodologies: firstly, with the research focus on the hydrocarbon sector, there are limited potential interviewees with direct experience in the sector, either as a state or private employee, or people located in geographical proximity to extractive sites and their associated infrastructure. While this thesis focuses on how perceptions of time have been altered by the sector, focus was given to direct stakeholders rather than a wider audience due to the fact that these participants were, or are, directly impacted by the hydrocarbon sector. Documentary evidence has been both utilised to substantiate claims made by respondents, to provide evidence to claims made by the thesis, and to be analysed.

2.1 Interviews

Interviews, in a structured, semi-structured and unstructured format, are a common method in the social sciences (Brinkmann, 2014). Interviews, in all formats, are 'verbal interchanges where one person, the interviewer, attempts to elicit information from another person' (Longhurst, 2016: 145). One of the key strengths of interviews is that the researcher can take advantage of social clues such as voice, body language and tone (Opdenakker, 2006), and they also allow an interviewer to build rapport with informants. However, it was noted before fieldwork that such clues can be culturally distinct, and it would be important not to accidently commit a *faux pas* during the interview through a misinterpretation of a social situation. Live, face to face interviews also allow for synchronous communication, with spontaneous answers and discussion, although this can be a detriment as it does not allow for reflection, which will be covered below.

Semi structured interviews were chosen as one of the main methods for this study. Semi structured interviews allow for a flexible and fluid structure, which allows the interview to cover select themes and topics (Mason, 2004). This was particularly important for this study, as this research covered a variety of different respondents with different experience and expertise, and these differences would have not been accurately covered in a more structured and rigid interview format. In other words, the experiences and expertise of the hydrocarbon sector between an IOC executive and a cashew farmer in Mtwara could be widely different, and a rigid structured interview with a set of questions would have not captured these experiences effectively.

This is further reflected on ontological position of semi structured interviews, in that they are 'concerned with people's knowledge, understandings, interpretations, experiences, and interactions' (Mason, 2004: 1020). In this respect, asking for perceptions and reconstruction of events allowed for fruitful discussions over select issues, such as the pipeline protests in Mtwara which are covered in chapter four. Related to this, compared to a more structured format, it also allows for interviewees experiences and perceptions that the interviewer was not expecting. Considering that this study focuses on differing perceptions of time, semi structured interviews were an essential choice.

Interviews were done in both a group format and in an individual format. It is important to note that the interviews where multiple interviewees were present were not focus groups, but rather group interviews, as the interviews conducted gave their own opinion and experience, rather than responding to views to build an opinion as a group which is more commonly seen in focus groups (Bryman, 2012). Group interviews allowed for multiple people to express their opinions and experiences of the hydrocarbon sector during one session and was mostly used at the village level in Mtwara and Tanga. It was also used for some interviews with TPDC personnel, at their request.

I sought as many avenues as possible for gateways that could lead to openings (Harvey, 2010). The hydrocarbon sector is dominated by elites (Hickey and Izama, 2017), and thus these people provided the best opportunity to gather data related to my research questions. Civil servants were targeted due to the fact that they are considered some of the best interviewees for research at the 'elite' level (Seldon, 1988). However, as explained below, in the Tanzanian context, this did not turn out to be the case. This thesis followed Herod's suggestion that 'the key to successful networking, though, is having done the basic research to figure out which organisations are connected to each other' (1999: 316). This was

not just understanding the formal connections between the organisations, but also the informal relationships which became apparent during discussions with IOC personnel.

This thesis utilised 70 one on one and group interviews across various different actors in the Tanzanian hydrocarbon industry (See Appendix A). The nature of semi structured interview questions allows for informants to take a 'fluid' form that considers the interests, experiences, and views of the interviewees (Valentine, 1997: 111), and 'to uncover new clues, to open up new dimensions of a problem and to secure vivid, accurate, inclusive accounts from informants based on personal experiences' (Burgess 2003: 165). Because of this, there is a 'joint production' of knowledge from interview (Wengraf, 2001: 3). The fluidity of such interviews allowed for both revisiting of previous information and comments, as well as exploring the previous experiences and expertise of informants, meant that interviews were the method of choice to collect data.

These interviews ranged from heads of IOCs operating in Tanzania, to mid-level interviewees consisted of bureaucratic personnel operating for Tanzanian bureaucracies, such as PURA, TPDC and the Ministry of Energy, as well as local governments, and private sector individuals working on the technical and legal side for IOCs, and local businesspeople in Mtwara and Tanga. Interviews have been described as a more efficient means of obtaining qualitative data (Harvey, 2010). For this research, interviews were chosen due to the semi-structured nature; early on into the interview process, it became further apparent that a semi-structured approach was effective for this project; it was noticed that different professions would often elicit different responses to questions presented. For example, engineers interviewed would often provide technical answers to questions, and would shy away from comments around policy or resource governance. The semi-structured nature of interviews allowed for flexibility to direct follow-up questions that better tailored to both the research questions and the interviewee's knowledge. This could not have occurred with other methods like questionaries; the rigid style of questionaries would have removed potential follow up questions and discussions that have proven to be very beneficial for the thesis.

Due to this thesis' research into resource nationalism and changing policies, one of the groups this thesis focused on was IOC executives within the country, as well as NOC executives within their respective parastatals. Interviewing these senior members of IOCs and state officials provided the best opportunity to gather data related to my research questions. Finally, interviews were conducted with those closest to the extractive projects in

the Mtwara and Tanga regions. These interviews were conducted both on a one-on-one format, and in a group format. I quickly learnt to create interview questions that were tailored for the specific audience and their expertise and experience; for example, questions would be different for someone in either a legal or technical background, even if they worked in the same organisation. Thematically, they focused on the changing policy landscape of the hydrocarbon sector, how project timelines have been influenced, and the politics of the sector. After the interview, there would be an interview debrief, with either just myself writing down how the interview went, or a discussion with my research assistant and a comparison of notes and what was obtained during the interview.

Due to the nature of the questions and subjects this project plans to research, selective sampling was used to ensure that interviews are targeted to those that have the knowledge, expertise, and experience of the hydrocarbon industry. In Dar es Salaam, I mainly targeted IOCs and state organisations that were connected with the sector (See Table 2 and 3), as well as domestic businesses looking to enter the sector through local content policies. In general, interviews of IOC and state employees were located in Dar es Salaam, the economic capital of the country. In Tanga and Mtwara, people were targeted based on either their geographical proximity to the hydrocarbon projects, potential business involvement in hydrocarbon projects, or more regional specific matters, which are discussed below. Strategies in obtaining interviews with all respondents are explored in greater detail below.

Each method has pitfalls. One of the largest pitfalls of semi-structured interviews is that they can be time consuming (Longhurst, 2009). This is less to do with the interview itself, which, for this research, lasted roughly one hour, but rather the time required before and after the interview. Time is required to obtain the interviews and to prepare the questions, particularly to make sure the questions can fully engage with the respondent's expertise and experience. Time is also required after the interview, both to type up the notes, reflect on the data and, if recorded, transcribe the interview. Semi-structured interviews have been described as a 'construction site of knowledge' (Kvale, 1996: 2). This means that both the interviewer and interviewee have an active, reflexive, and constitutive role in the process of knowledge construction. This has both advantages and disadvantages; one of the largest disadvantages of this is the fact that the interviewer's positionality can shape the responses made. My positionality, and how it could have altered interviewees responses, is covered in greater depth below in this chapter.

There can also be difficulties in group interviews. One of the largest difficulties is that one person can dominate the conversation (Morgan, 1996). While the approach to group interviews was less structured to allow people to contribute as much or as little as they personally wanted to, it did create some difficulties. In one such group interview in Mtwara, one participant was very vocal and tended to dominate the conversation. The difficulty of this was expanded due to the fact that the interview was in Swahili, and my limited language skills meant I had to rely more on my research assistant to get other members of the group to express their opinions.

2.1.1 Interviewing IOC and State Officials

Many of the interviews conducted, particularly in Dar es Salaam, were people that were directly involved in the hydrocarbon sector in some form of capacity (See Tables 2 and 3). Some of these included senior executives and could be considered 'elite' interviews. Elite interviews have been used in the social sciences since the 1960s (Dexter, 1970). Since then, they have been utilised both in political science and geography to examine the role of political institutions and industries (e.g., Heinz et al., 1993). The growth of the method in geography began in the 1990s (e.g., Katz, 1994; Herod, 1999). Interviews of those considered 'elites' were a logical methodology for this research, in part due to elites having unique insights into organisations that they are a part of (Harvey, 2010). It was noted that elites can be very conscious of their own power in interviews and in the organising of them (Richards, 1996). Nevertheless, the usefulness of the term 'elite interview' has been critiqued, as it relies on assumptions on where power lies and the power relations between the interviewer and interviewee (Smith, 2006). As shown below, this proved to be true for interviewing state personnel, whereby those interviewed were concerned on how an interview could affect their career. Harvey (2010) argues that defining elites can be more difficult when comparing people across different corporations, sectors, and national boundaries due to changes in job titles and roles that people undertake, and this was noted as I was conducting research in a new country and in a business culture, I have not previously been a part of.

IOC Personnel Interviewed							
Footnote Title	**Interview Type**	**Numerical Value in Footnote**	**Organisation (if applicable)**	**Location of Interview**	**Gender**	**Tanzanian National?**	**Date**
IOC Local Content Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	No	12.03.2018
Engineer	Single	2	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	02.03.2018
Engineer	Single	1	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	22.02.2018
Engineer	Single	3	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	28.06.2018

Environmental and Social Consultant	Single	N/A	Independent Consultant	Dar es Salaam	M	No	09.08.2017
Former IOC Driver	Single	N/A	N/A	Mtwara	M	Yes	12.07.2018
Former IOC Yard Worker	Single	N/A	N/A	Mtwara	M	Yes	10.07.2018
IOC Executives	Group	1	Hidden to Preserve Anonymity	Dar es Salaam	Mx1, Fx2	Mixed	14.03.2018
IOC Executives	Group	2	Hidden to Preserve Anonymity	Dar es Salaam	Mx2	Mixed	28.03.2018
Lawyer	Single	N/A	Independent IOC Lawyer	Dar es Salaam	M	Yes	18.03.2018
Local Content Director	Single	N/A	Hidden to Preserve Anonymity	Mtwara	M	Yes	13.07.2018
Senior Engineer	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	24.11.2017
IOC Senior Executive	Single	1	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	04.12.2017
IOC Senior Executive	Single	2	Hidden to Preserve Anonymity	Dar es Salaam	M	No	12.03.2018
IOC Senior Executive	Single	3	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	13.02.2018
IOC Senior Executive	Single	4	Hidden to Preserve Anonymity	Dar es Salaam	M	No	14.03.2018
Well Manager	Single	N/A	Hidden to Preserve Anonymity	Mtwara	M	Yes	17.07.2018

Table 2: List of Former and Current IOC Personnel Interviewed

State Personnel Interviewed							
Footnote Title	Interview Type	Numerical Value in Footnote	Organisation (if applicable)	Location of Interview	Gender	Tanzanian National?	Date
CCM MP	Single	N/A	CCM	Dar es Salaam	M	Yes	16.02.2018
CCM Regional Party Administrator	Single	N/A	CCM	Mtwara	M	Yes	13.07.2018
CUF MP	Single	N/A	CUF	Dar es Salaam	M	Yes	14.03.2018
Dockworker	Single	1	Mtwara Port	Dar es Salaam	M	Yes	18.02.2018
Dockworker	Single	2	Mtwara Port	Mtwara	M	Yes	20.07.2018
East African Foreign Ministry Employees	Group	N/A	Ministry of Foreign Affairs and East African Cooperation	Dodoma	Mx3	Yes	06.03.2018
Economic Planner	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	09.07.2018
Gas Technician	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	09.07.2018
Lawyer	Single	2	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	19.03.2018
Lawyer	Single	1	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	21.11.2017
Managing Director	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	26.03.2018
State Auditor	Single	N/A	Ministry of Energy and Minerals	Dar es Salaam	M	Yes	01.02.2018
State Local Content Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	F	Yes	18.04.2018
Planning Officer	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	28.02.2018
Project Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	27.11.2017
State Local Content Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	18.03.2018

Retired Senior TPDC Executive	Single	N/A	TPDC	Dar es Salaam	M	Yes	15.03.2018
State Senior Executive	Single	1	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	21.03.2018
State Senior Executive	Single	2	Ministry of Energy and Minerals	Dar es Salaam	M	Yes	28.03.2018
Senior Mtwara Local Government Officer	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	26.07.2018
State Local Content Coordinators	Group	N/A	Hidden to Preserve Anonymity	Dar es Salaam	Mx3	Yes	22.03.2018
State Geologists	Group	N/A	Hidden to Preserve Anonymity	Dar es Salaam	Mx3	Yes	03.02.2018

Table 3: List of Current and Former Tanzanian State Personnel Interviewed

Miscellaneous							
Footnote Title	Interview Type	Numerical Value in Footnote	Organisation (if applicable)	Location of Interview	Gender	Tanzanian National?	Date
Ugandan Diplomat	Single	N/A	Ugandan Ministry of Foreign Affairs	Dar es Salaam	M	No	15.03.2018
Mtwara Poverty Reduction NGO Employee	Single	1	Mtwara Poverty Reduction NGO	Mtwara	M	Yes	14.07.2018
Mtwara Poverty Reduction NGO Employee	Single	2	Mtwara Poverty Reduction NGO	Mtwara	F	Yes	15.07.2018
Mtwara Poverty Reduction NGO Employee	Single	3	Mtwara Poverty Reduction NGO	Mtwara	M	Yes	17.07.2018
Mtwara Poverty Reduction NGO Group	Group	N/A	Mtwara Poverty Reduction NGO (Group)	Mtwara	Mx4, Fx3	Yes	11.07.2018
NGO Executive	Single	N/A	Environmental and Social NGO	Tanga	M	Yes	07.08.2018

Table 4: List of Miscellaneous Interviews

As one can see in the tables above, the vast majority of respondents in the private and state sector were male. Alongside this, all state personnel interviewed were Tanzanian nationals, and the majority of IOC personnel interviewed were also Tanzanian, with the exception of the independent consultant, EACOP and Shell personnel, and one of the Songas interviewees. The hydrocarbon sector has been, and is still is, male dominated, and the case of Tanzania was no different.

To start my research, I contacted Tanzanian academics as they allowed me to further understand the 'do's and do not' of researching in these countries (Vorrath, 2013: 60). This proved to be a good choice, with one academic suggesting that access to government institutions could be more difficult than it was before due to changing legislation and a greater distrust of outsiders. It was further hoped that these would allow me to build contacts in Tanzania in the hydrocarbon sector, which did happen, with academics suggesting contacts, as well as their own experiences talking to them. A common theme of the literature has been the fact that interviews can be difficult to organise. In my experience in Tanzania,

the difficulty of organising such interviews was dependent on whether the interviewee was associated with the private or public sector, with trying to obtain access easier for the former when compared to the latter.

One of the advantages of interviews is that there is the opportunity for 'snowball sampling', in that interviewees could get the researcher in touch with other people that might be of interest for the research (Bryman, 2012). This is not to suggest that snowball sampling does not occur in other interviews, but rather it can present one of the few avenues to reach people as it can be difficult to get hold of high-ranking officials in either the state or private sector. In the context of my research, this strategy provided mixed results; interviews with IOC members, as whole, offered contacts both within their own organisations, other IOCs and Tanzanian civil servants operating in the sector. Bureaucrats, on the other hand, were more reluctant to give out contact information of other civil servants for potential interviews. In one of the earliest interviews, when asked for other state officials that could be potentially interviewed, the interviewee said they were not comfortable doing so and explained why:

> 'Let me be frank to you, at this point in time, there has been a lot of reforms, and most of the people in the ministry have been set aside, pending investigations. While I haven't been removed, even I'm being investigated, as are the people above and below me. People may not be willing to talk to you because of what has happened to others. Because of this hostile situation, other people in the industry may be worried at this point in time, so you may have to wait until the dust settles.'[20]

The reforms Magufuli has enacted in the Tanzanian bureaucracy have been widespread and not limited to the extractives sector. The removal of high and mid-ranking officials has been widespread since 2015, with many bureaucrats under investigation for corruption or poor results (Paget, 2017b). This appears to be a contrast to research conducted during Kikwete's Presidency; while I have not researched Tanzania prior to Magufuli's election, discussions with Tanzanian and foreign researchers suggested the ability to interview state officials has become harder during Magufuli's tenure. The interview quoted above was one of the first interviews to be conducted, and it was hoped that these concerns would subside and snowball sampling in the civil service would be easier. This did not happen.

In this case, to combat the culture of fear that has emerged over being interviewed, I was strict in going through official channels and I ensured I had the correct paperwork to

[20] Interview, State Auditor, Ministry of Energy and Minerals, Dar es Salaam, 01.02.2018.

present to people to help people lessen their concerns. Information on how I kept informants anonymised to ensure they did not lose their jobs is covered in the ethics section of this chapter. Furthermore, safeguards and promises made clear in the consent form that any information provided to me will be for research use only. In the form itself there were different options available over the use of their name, however, in the early stages it became apparent that the best strategy to use is to say that no real names will be in the thesis at all. During the interview itself, it became common for interviewees to bring another colleague with them to the interview. For the purposes of this research, these interviews have been seen as one-on-one interviews rather than group interviews due to the usual dominance of one speaker. While I still ended interviews with a request for further contacts, people were still reluctant to give contacts to me.

The one section of the state that was open to researchers was PURA. Unlike other sectors of the Tanzanian civil service, people in the regulatory authority were generally open to me, both in the interviews themselves and in organising them. The exact reason why PURA was more open compared to other state organisations is not known. However, it is hypothesised that PURA personnel were more open due to the fact they were seconded from the ministry of energy and TPDC, and thus there was a degree of freedom as the role they were undertaking was not their permanent role and there may be a large turnover of secondments.

TPDC were less welcoming and open than PURA, but still proved to be useful once trust had been built. Central to this was obtaining clearance by the director to be allowed to research TPDC, as well as friendly relations with a gatekeeper that often sped up the process and aided organising meetings for me. One of the main issues, however, was the questions presented; interviewees often asked for questions in advance and steered away from political answers. While the preparation would have allowed for greater detail for my answers, I feel that this was done to ensure that sensitive topics in the hydrocarbon sector would be answered neutrally. This affected my research as it would have influenced the answers given through preparation. There is little that could be done to combat this, as not providing the questions in advance is impolite, damage rapport with the interviewee, and potentially deny chances of an interview.

Compared to trying to obtain interviews in the public sector, the private sector as a whole, was more welcoming to my research. While it did take time to organise such interviews, I only had one formal rejection from an IOC with a request to interview, which

was PanAfrican Energy Tanzania, which cited their legal dispute with the government as the reason for the rejection of the interview.[21] This may be in part due to the current pause of the industry; during one discussion with a gatekeeper during my pre-fieldwork trip, they recommended I just 'walk into the office and ask to speak to the director, they've got nothing else going on!'[22] While it was not as simple as this, the ease to get access to top-level personnel in the IOCs did surprise me. In Dar es Salaam, I found it was rare for IOC interviewees to ask to see my research permit, something I had wished I knew before to try and obtain more substantial interviews during my pre-fieldwork trip in June to August.[23]

Upon reflection on why IOCs were in general more receptive to interviews compared to state institutions, I believe that the study's focus on governance changes in the sector led to both reciprocity from IOCs and distrust from state institutions. It gave IOCs the chance to express frustration with the legal changes and the government's approach to the hydrocarbon sector through their interview responses, and because of this, I had to be aware how wider events in the hydrocarbon sector may influence the data collected from IOCs. Conversely, state institutions could have been less receptive to interview requests due to wider bureaucratic reform in the Tanzanian civil service, where there had been considerable firings of personnel across the civil service (The Guardian, 2015; Economist, 2018). This is due to the fear that if they did the interview, or said something considered incorrect or controversial, they could lose their job. To combat this, anonymity was promised to all interviewees. It is perceived that furthering the distrust of being interviewed was my focus on resource nationalism, as the legal changes have been portrayed as poor by both western IOCs, and in western media (Economist, 2017). To combat this, I looked to provide questions in advance and to explain that the research into the changes was to understand the temporalities behind such changes, rather than arguing against the changes.

One of the most difficult things was not trying to organise the interviews, but rather trying to obtain any follow-up interviews. Once the original interview had been done with members of the private sector, I found there was little opportunity to try and obtain a follow up interview to discuss any further matters of my research. Due to some of the changes that

[21] This was a legal dispute between the government and Swala's acquisition of PanAfrican Energy, the parent company of PanAfrican Energy Tanzania.
[22] Interview, Environmental and Social Consultant, Independent Consultant, Dar es Salaam, 09.08.2017.
[23] This was tried in Uganda, and the IOCs located there did request to see my research permit, which I did not have.

were undertook with this thesis's structure and aims, it would have been beneficial for another discussion. These rejections for further interviews were done by silent refusal.

2.1.2 Data Collection in Mtwara and Tanga

Interviews at the local level brought different challenges, particularly over who could be selected for interview. Both Mtwara and Tanga brought with it different challenges, and different solutions. As my positionality of being a white male researching in Tanzania, it was important to remember to conceptualise interview questions that relevant to participants experience (Berger, 2015). In this instance, I have never lived near an active extractive site, nor lived near a site that is central to a multinational infrastructure project. It was also important to situate oneself socially and emotionally in relation to respondents (Mauthner and Doucet, 2003), particularly when talking about sensitive topics such as frustrations over EACOP and memories of Mtwara protests.

Data collection in Mtwara would prove fruitful. I had ensured that I had the correct paperwork, which included a letter from TPDC confirming my credentials, before going to the region to ensure that permission to go to the villages would be processed quickly. Ensuring that I went through the correct bureaucratic procedures was accompanied with a number of interviews of local government personnel that had been involved in the sector. A similar process occurred with the Vocational Education and Training Authority (VETA) and interviewing people involved with increasing skills relevant to the gas industry.

Obtaining permission with the local government was just one of the steps to obtain interviews with Mtwaran villagers. While I had official permission, at the beginning I still lacked any knowledge of who, and how to contact people that could be willing to give up their time for an interview. I contacted one of the local NGOs who specialises in poverty reduction and had works with the villages I looked to contact. Through them, I had made contacts with their village representatives, who were originally from their respective villages, and organised both individual and group interviews of those affected by the gas industry. In essence, this NGO became my gatekeeper for village interviews. There were flaws to this approach. It only gives a partial view of the community, and those interviewed were people who have good relations with the NGO. To combat this, after the initial greetings and interviews and when rapport was built with the local communities, I returned for more interviews without the NGO present to obtain a wider range of interviewees (See Table 5).

This tactic did have its downsides; in one instance, it did accidentally undermine the authority of one local leader, who did not object to our visit outright, but was not happy with

our presence, in part due to previous research being conducted in the village by other researchers. According to villagers, this was due to unkept promises of wider development for the community. This was connected to another issue around research in the villages of Mnazi Bay; the area has been heavily researched, not just for social issues around oil and gas (e.g., Must, 2018; Kamat *et al*, 2019), but also for research on agricultural and fishing practises in a marine park (e.g., Mwanjela, 2011; Mangora *et al*, 2014) and more specifically, dynamite fishing (Mwanjela and Lokina, 2016; Kamat, 2019; Raycraft, 2019). In essence, villagers were used to researchers coming and going to the region, and there was a degree of 'going through the motions' with some interviewees.

Local Communities and Village Participants							
Footnote Title	Interview Type	Numerical Value in Footnote	Organisation (if applicable)	Location of Interview	Gender	Tanzanian National?	Date
Cashew Farmer	Single	1	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	2	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	3	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	4	N/A	Mtwara	M	Yes	23.07.2018
Chongoleani Village	Group	1	N/A	Tanga	Mx3, Fx3	Yes	18.09.2018
Chongoleani Village	Group	2	N/A	Tanga	Mx3, Fx3	Yes	19.09.2018
Fisherman	Single	1	N/A	Mtwara	M	Yes	24.07.2018
Fisherman	Single	2	N/A	Mtwara	M	Yes	24.07.2018
Madimba Village	Group	N/A	N/A	Mtwara	Mx2, Fx4	Yes	12.07.2018
Msimbati Villagers	Group	N/A	N/A	Mtwara	Mx3, Fx4	Yes	18.07.2018
Mtwara City	Group	N/A	N/A	Mtwara	Mx4	Yes	07.07.2018
Mtwara Resident	Single	N/A	N/A	Mtwara	M	Yes	10.07.2018
Ruvura Village	Group	N/A	N/A	Mtwara	Mx1, Fx5	Yes	05.07.2018

Table 5: List of Local Communities and Village Participants Interviewed.

As one would expect from interviewing local communities, all interviewed in this table were Tanzanian nationals. The majority of respondents were also male, and this was influenced by a desire to interview some of the protesters in Mtwara, which were male dominated. The exception to this was the group interviews in the villages, which had more women than men in the interviews, and allowed for some female perspectives on the gas sector. Nevertheless, it is noted that the gender disparity of respondents is a weakness of this research.

Many of the group interviews occurred in the villages in Mnazi Bay. These were organised with the help of the Mtwaran NGO and consisted of people from the villages of mixed gender and age. These consisted of four to seven respondents and were conducted in Swahili. Their responses were translated to me. Some of the more vocal respondents were

requested for a one-on-one interview to provide further depth to their responses, which many accepted.

Obtaining interviews in the city of Mtwara also followed gatekeepers and networking, often through more informal structures. Due to a contact of a Mtwaran protester made in Dar es Salaam, I had contacted a number of people that had participated in the protests. However, early into the stay in Mtwara, it became very clear that finding people that had either participated in the protests or had been affected by the gas industry was easy to find, as nearly all those who had lived in either the city or the villages had been affected by the event. Meetings with boda drivers aided snowball sampling. It was clear that word got around about me and my research as later in my trip in Mtwara, people were requesting to be interviewed. This attempt to obtain interviews from the ground-up proved to be fruitful, but some of the negatives of this was the fact that the respondents were very male-oriented.

Finding potential interviewees in Tanga proved more challenging than in Mtwara. This was in part due to the fact that the EACOP project was in the early stage of development in the pre-construction phase. This meant that, while Tanga was supposed to be one of the major centres of EACOP's development, there was little discussion or knowledge about the project outside of those with direct (or attempted) participation on the project. Furthermore, interview requests by some local government institutions were rejected on the basis that little to no preparations for the EACOP project had been done at a local level. This was true both for VETA and for the local government office. Alongside these difficulties were other risks, which are explained below.

For access to businesspeople in Tanga with an interest in participating on EACOP, I approached the Tanga Chamber of Commerce. In general, the Tanga Chamber of Commerce was more helpful in becoming a gatekeeper for me to interview businesspeople when compared to the Mtwaran Chamber of Commerce (See Table 6). Upon reflection, this was due to the fact that many business members wanted their voice heard on the struggles to access tenders on the project (See Chapter seven). They provided me with a list of business members that had been known to try and participate on the project, with their contact details added. It is theorised that the reason for the help was due to the fact that in general, there was a level of frustration over the lack of opportunities the pipeline project had brought. Due to the fact that access to IOC and state personnel in Dar es Salaam had been easier than accessing people at the village level, much of the data collected in Tanga has been

focused on the business community, which has altered the analysis of the data in chapter seven. This has altered some of the structure of the thesis; as interviews could not be made with a large number of village respondents as had been the case in Mtwara, more of a focus was made on businesses in the area that sought to participate on the EACOP project.

Non-IOC Businesses Personnel Interviewed							
Footnote Title	Interview Type	Numerical Value in Footnote	Organisation (if applicable)	Location of Interview	Gender	Tanzanian National?	Date
Businessperson	Single	2	Shop Owner	Mtwara	M	Yes	02.07.2018
Businessperson	Single	N/A	Tanga Chamber of Commerce	Tanga	M	Yes	07.08.2018
Businessperson	Single	5	Construction Services	Tanga	M	Yes	14.08.2018
Businessperson	Single	4	Medical Supply Services	Tanga	M	Yes	18.08.2018
Businessperson	Single	1	Shopkeeper	Mtwara	F	Yes	24.07.2018
Businessperson	Single	3	IOC Services Supplier	Dar es Salaam	M	No	31.01.2018
NAF Hotel Manager	Single	N/A	NAF Hotel	Mtwara	M	Yes	02.07.2018
Business Senior Executive 5	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	F	Yes	05.12.2017
Tiffany Diamond Hotel Manager	Single	N/A	Tiffany Diamond Hotel	Mtwara	M	Yes	18.07.2018
Mtwara Market Association	Group	N/A	Mtwara Market	Mtwara	M	Yes	13.07.2018
Oil and Gas Bank Executives	Group	N/A	Stanbic Bank	Dar es Salaam	Mx2	Yes	22.02.2018

Table 6: List of Non-IOC Businesspeople Interviewed

Since I had a run in with the authorities early on into the visit to Tanga, combined with the lack of official permission to Chongoleani, it was decided that there would be no direct visit to the village of Chongoleani. Instead, gatekeepers from Dar es Salaam who knew people with links to Chongoleani, interviews with villagers were possible. After ensuring that we were no longer in trouble with the authorities and were no longer followed, group interviews were organised with residents of Chongoleani. This was organised in part with a gatekeeper, who would ask people on my behalf to come for a group interview in Tanga, with myself requesting the gatekeeper a range of interviewees both in terms of sex and age, who had been affected or had an interest in the pipeline project. All travel costs and time costs were covered at my expense. This was the best strategy to both protect informants, gatekeepers, and my research assistant, and still obtain data. Nevertheless, because of the risks associated with travel restrictions and surveillance, data collection was not up to the same quantity when compared to Dar es Salaam and Mtwara.

It is recognised that this tactic does have its disadvantages; I had little control over who could be chosen outside of the parameters given, and the choices could have been affected by the personal relationships between the gatekeepers and the interviewees. Nevertheless, given the circumstances that were evident in Tanga, this was perceived as the best course of action both to obtain interview data, as well as protecting myself, my research assistant and those interviewed.

All those interviewed above, bar from the IOC supplier, were Tanzanian nationals, and were once again male dominated. The language barrier was another issue both in Tanga and Mtwara. While I had passable Swahili, my ability in the language was not strong enough to conduct interviews. This was not a problem with interviews with most of the business and local political elites, where the majority had good English skills. Choices were given to people if they would like the interview in either English or Swahili. To combat this, my research assistant conducted the interview in Swahili, both taking notes and translating for me to converse. This made interviews more time consuming, and things could have been lost in translation.

2.2 Documentary Evidence

Documentary evidence was also gathered in conjunction with semi structured interviews. While sometimes considered the 'monopoly of professional historians' (Mogalakwe, 2006: 222), one advantage of the use of documentary evidence is that the documents have not been made at the request of the social researcher, and are therefore are considered 'non-reactive', so the possibility of a reactive effect can largely be discounted as a limitation of the data (Bryman, 2012: 543). As documentary evidence are not created for the researcher, they can tell us indirectly about the social world of the people who created them (Payne and Payne, 2004).

The documents used in this study are from both state and non-state sources. In terms of state documents, they have been in the forms of planning documents, legislation, and documents from regional governments. This thesis also utilises regional economic statistics compiled from the National Bureau of Statistics. These are easily available online through the Tanzanian government's website. One of the most used primary sources was Tanzanian legislation, particularly oil and gas legislation passed in 2015 and 2017. These documents are available to the public and are easily accessed online. Alongside these pieces of legislation, this thesis also utilised other government documents that were easily

accessible; industrial plans, both at the national and the regional level were obtained, as well as gas-specific documents relating to gas strategies.

Alongside Tanzanian state documents, this thesis also utilises reports from state aid agencies such as the Department of International Development (DFID) and Norwegian Agency for Development Cooperation (NORAD). These were also accessed online and are used more in a supporting capacity when compared to the analysis of the Tanzanian state documents due to this thesis focus on temporalities in the states extractive sector.

Alongside state documents, this study uses business documents, newspaper sources and multinational reports and statistics. Unlike other documentary sources, some of the business documents were gathered during fieldwork and are not available online. This is explored in greater detail below. Newspaper sources were collected, often online, to substantiate claims made by interviewees. National GDP and commodity price data was gathered from IMF and the World Bank to highlight global prices changes in the hydrocarbon sector.

It was hoped that interviews, particularly of those in higher positions, would allow access of documents (Herod, 1999). Considering the general secrecy, the hydrocarbon industry operates in, in hindsight, this was naïve. While documents, particularly relating to local content data was promised to me by interviewees from TPDC and Shell, repeated requests after the interview for the documents were met with silent refusal. This perhaps is in part due to the fact that they did not have permission to allow me to see the documents and therefore did not respond. Hence, the majority of documentary evidence from IOCs comes in the forms of publicly available documents. This varies from company to company, with some companies, such as Equinor, having far more publicly available information on their operations compared to other IOCs.

One of the major, non-public sources for documents was through general meetings of local content. Interest around local content participation was at its highest during my time in fieldwork. Information around the numbers of jobs, the skills required and other local content information for EACOP were obtained through these meetings. Alongside this has been a use of newspaper sources, although this is being used solely for declaration of facts corroborated with interview data. This is in part due to the fact that local newspaper reports

on the hydrocarbon sector are often sensationalised. This was warned to me by IOC interviewees early on during fieldwork,[24] and over time I found that they were right.

Documentary evidence also has negatives. One of the main issues is the issue of authenticity and accessibility (Tight, 2019). To combat this, government documents were downloaded from official government websites, often from ministry websites. In addition to this, some state documents, which were not publicly available, were provided to me during the interview process for me to take notes on. This was also true for business and EACOP documents, which were gathered during participation of local content conferences in Dar es Salaam. It is therefore little concern over the authenticity of these documents within this research.

Overall, the importance of obtaining documentary evidence diminished over time. This was due to the fact that I had little success with interviews in obtaining documents. Because of this, the strategy of using documentary evidence has changed from being a planned equal partner to interviews, to more of a supporting role in analysing the data.

2.3 Field Sites and Structure

As this research focused on the politics of time in the Tanzanian gas industry, fieldwork was essential. The fieldwork sites for this research were in Dar es Salaam, and the

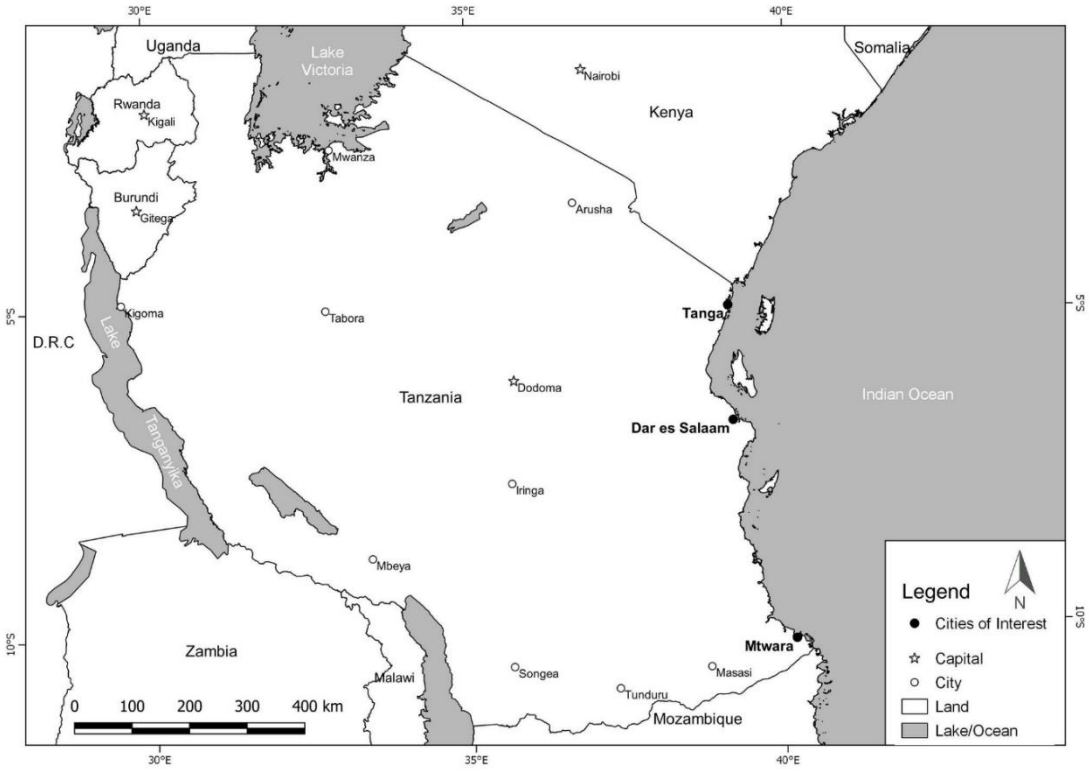

Figure 6: Map of Cities and Regions of Interest

[24] Environmental and Social Consultant.

regions of Mtwara and Tanga (Figure 6). A visit to Dodoma was also held to try and interview politicians in the Energy and Minerals Committee, as well as the smaller offices of the ministry of mining and energy, which is currently in a transition of moving staff from Dar es Salaam to Dodoma. The logic behind this was to get access to MPs before or after the parliamentary session held in April, and thus obtain many interviews in a short space of time with minimal travel. These attempts were unsuccessful. This could have been due to my positionality; being a foreign researcher and approaching MPs just before or after the parliamentary session could have meant that I was (understandably) not a priority. Hence, I had to contact MPs directly through emails, and often through individuals in contact with them who could vouch for me. Because of this, I obtained fewer MP interviews than I initially planned. Attempts to interview people in the ministry of mining and energy offices in Dodoma also proved fruitless due to silent refusal.

Due to the fact that I had never been to East Africa before, and because my research funding allowed it, my first trip to Tanzania and Uganda occurred from June to August 2017. This was more of a 'pre-fieldwork' visit of sorts. The role of this pre-fieldwork visit was firstly to get used to both countries, as there was to be expected a degree of challenges or other variables that I may have not prepared for beforehand. Secondly, the role of this trip was to network Through contacts made from the University of Edinburgh, I had contacted a number of people in Tanzania that either worked in or knew people that worked in the hydrocarbon sector. These were preliminary meetings in a more relaxed environment rather than strict data-driven interviews. The idea behind this was that such relationships take time to build trust, and they should be built upon sooner rather than later. Finally, this trip was done to speed up the bureaucratic process in obtaining a research permit.

Dar es Salaam was an obvious choice for a field research site due to the fact that it is the economic centre of the country. The city is the national headquarters for all the IOCs operating in the country, as well as the headquarters of TPDC, EWURA and PURA. While there is currently a movement of civil service personnel from Dar es Salaam, the city is still vital for the ministry of energy and minerals, with the majority of staff yet to move. The city was also home to some of the organisations that were set up to obtain local content and their members were often based in Dar es Salaam. Local content workshops, some of which I managed to attend, were also held in the city. Because of this centralisation of personnel and institutions, Dar es Salaam was a logical choice for such interviews. When I was not in either Mtwara, Dodoma or Tanga, I was based in Dar es Salaam for fieldwork.

Some ministries targeted did not work for data collection due to the fact, while on paper they are officially involved in certain sections of the hydrocarbon industry, in reality they had little to do with policies in the sector. This was best exemplified with approaching the Ministry of Labour and Employment for research into the local content policies on the EACOP pipeline. In spite of the fact that they are officially mentioned as one of the ministries working on this policy on the project, and it would appear logical to have a ministry focusing on employment working on a policy that in part promotes employment. After a few introductory meetings between myself and mid- and senior level personnel, it quickly became apparent that the ministry had little to do with local content on EACOP, with one senior member even asking me 'what is local content?'[25]

Mtwara was chosen due to the fact that both the onshore and offshore gas industry is based there, with the onshore industry being based in Mnazi Bay, and the offshore gas sector utilising Mtwara and the port there as a base of operations. A total of six weeks was spent in Mtwara. Furthermore, the city of Mtwara was the epicentre of the riots that occurred in the city from late 2012 to mid-2013, and thus it was hypothesised that the gas sector had already brought out tensions in the area over the direction of national gas policy and its impact on the local political economy. As chapter four and five demonstrate, this was

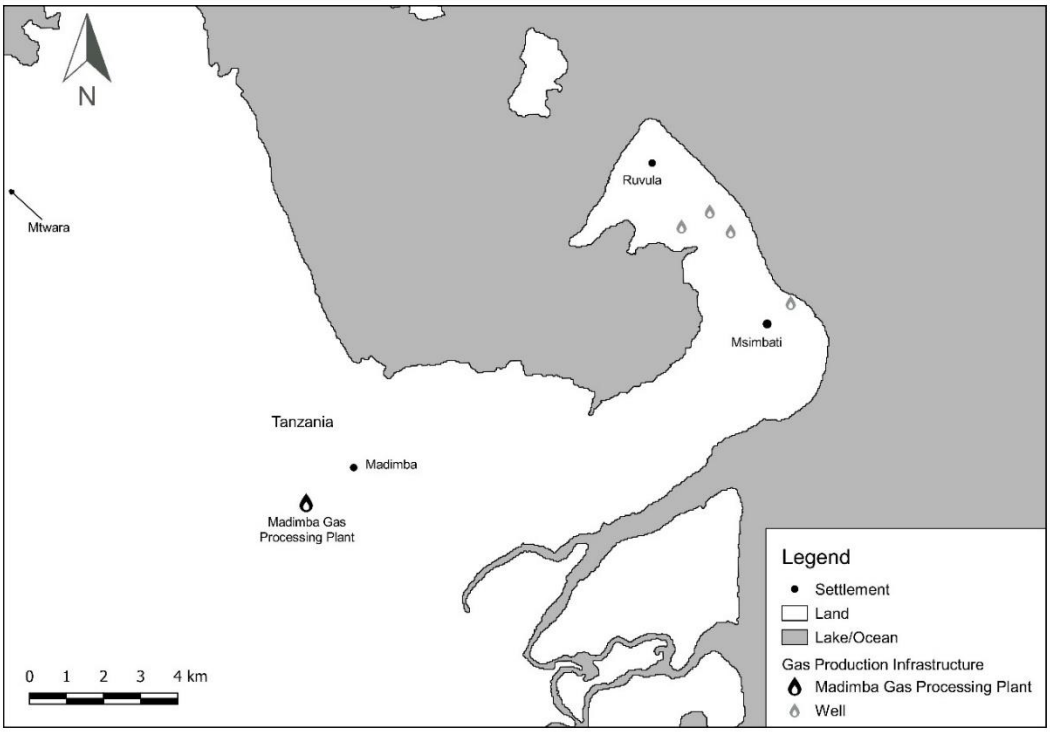

Figure 7: Map of Villages visited in Mnazi Bay

[25] Fieldwork notes, Dar es Salaam, 28/02/2018.

correct; the gas sector had, and is still having, a considerable impact on communities near the extraction site and the city of Mtwara. Alongside the city of Mtwara, the villages of Ruvura, Msimbati, and Madimba, all located in Mnazi Bay, were chosen as field sites for one-on-one and group interviews (Figure 7). The reasons behind the choices of villages was geography; these villages are located in closest proximity to the gas extraction sites, and the infrastructure required to process the gas before the majority of it is piped to power stations in Dar es Salaam.

Unlike Dar es Salaam and Mtwara, Tanga was not originally planned as chosen as a field site. However, with events around EACOP's progression, combined with discussions with interviewees associated both in the supply sector and directly on the pipeline convinced me that it was the 'epicentre' of EACOP's activity. However, as chapter seven highlights, this was not the case, and some of the most difficult moments during fieldwork occurred during my stay in Tanga. Because of these difficulties, which will be explored below, my stay in Tanga was just three weeks.

3 Positionality

3.1 Identity

Due to the fact that 'we are all raced, classed, and gendered' (Townsend-Bell, 2009: 311), as well as sexed, aged, and nationalised, it is important to understand how these variables presented challenges and opportunities to my data collection and authenticity. Central to this project was understanding the positionalities of the researcher, which had both positive and negative consequences for fieldwork. Being a white, male, and British, with no links to the industry meant I was an outsider to both the political scene and the hydrocarbon sector in Tanzania. This affected my research in a variety of different ways.

Being an outsider, both to the hydrocarbon industry at large, as well as a foreigner, made me a stranger in two respects. This can provide benefits; doing political research in another country in some respects could have presented me as a 'harmless foreigner rather than a threatening domestic investigator' (Herod, 1999: 322). Additionally, a skilled researcher can see things that may not be obvious to the insider who is 'in a mass of detail' (Hanlon, 1991: 202). While I cannot compare experiences, access, while timely and often in an environment of distrust over my intentions, generally was a simple process.

As discussed above, there is a large gender bias towards men as respondents in this research. Being a male researcher in a male dominated industry, my gender influenced the

data collection in select ways; while I experienced some assumptions that my knowledge of the sector and country was limited, this was more to do with being a foreigner rather than my gender. Rather my gender allowed me to 'fit in' with the male dominated industry. However, upon reflection, it was noted that there was greater gender equality found when researching local content, with more women in high-level positions both in the private and public sector.

There were, of course some disadvantages within my position. Firstly, I lacked knowledge of cultural details. This was less of an issue for the IOCs, due in part to the globalised nature of the oil sector and the fact that many of the respondents tended to be foreigners or Tanzanian nationals that had either studied or worked abroad. This became more apparent in village level interviews. The presence of a Tanzanian research assistant mitigated some of these issues, and on the few occasions I accidentally committed a *faux pas*, my research assistant let me know for future interactions with people. Nevertheless, the true extent of how this affected the data cannot be certain of this may have been hidden from me.

Positionalities are not a binary insider/outsider categorisation (Merriam *et al*, 2001), and during my time, my positionality, particularly in more professional circles in Dar es Salaam, shifted from an outsider to something of an in-between. This was true in Dar es Salaam as I would frequent events and conferences held by the government and notice many people that I had interviews with and were on friendly terms. Mtwara and Tanga were different. As I was only in Mtwara for six weeks and Tanga for three weeks, there was less time to build connections with informants. This was particularly true for Tanga, as concerns of being followed by the state led me to less contacts overall in the city, out of concern of those being associated with me being questioned. In Mtwara, there was some shifting of my positionality within the NGO, and some of the contacts made in the city. As noted by Vorrath (2013), in some cases, informants can become friends, and therefore it is noted that it is always important to critically engage with the information provided.

Language was another barrier to research and reinforced positionalities between me and the interviewee. Bar from a few interviewees, participants located in villages near extractive sites did not know English. Unlike other countries in Africa, Swahili has become a universal language of Tanzania. Some respondents had a rudimentary knowledge of English and would tell me things in English directly, often for impact on a point they were making. For these interviewees, my research assistant acted as a translator between myself and the

interviewee, with notes written by myself in English and his in Swahili. He would then translate his notes and send them to me, both for comparison, and to pick up more expressive details that could have been lost in translation beforehand.

One of the surprising advantages I found for building trust was being a student at the University of Edinburgh, and connections the city and the country of Scotland had with many of the Tanzanian professionals in the gas sector. Once I told people that I am a PhD researcher at the University of Edinburgh, many Tanzanian's, both at the professional and working-class level, would often know that Nyerere was a student at the university, and allowed for more rapport. Furthermore, due to the oil sector in Scotland, many of the Tanzanian professionals had studied some form of oil and gas degree at a Scottish university, typically in Aberdeen or Dundee.[26] This allowed for a greater rapport with these individuals as we discussed experiences of the country before and after the interviews.

Whist efforts can and should be made to consider the positionality of researcher, one cannot be fully sure that they have correctly identified what others make of them (Rose, 1997). Therefore, while this thesis has provided an attempt to consider the researcher's positionality and methodological problems I encountered, it is difficult to fully and correctly understand the full scope of one's positionality.

3.2 Research assistant

Early on into my fieldwork experience, I employed a research assistant to aid with data collection. One of the most important aspects of employing a research assistant is to recognise the power imbalances and ethical concerns, as well as to ensure that the person was appropriate for the role (Molony and Hammett, 2007). In this respect, I wanted someone who had a proficiency both in English and Swahili, an understanding of the political and economic dynamics of the gas sector in Tanzania, analytical and interpersonal skills, and would be willing to travel with me. The reasons for these criteria were to ensure a standard of data collection, professionalism, and analysis and to provide language assistance.

To do this, I asked my contact at the University of Dar es Salaam if they could recommend someone, either someone they knew or a postgraduate student. They recommended their own research assistant, who had helped with data collection on their own research in the hydrocarbon sector. There was also no reason to believe that the data

[26] This was both in technical and legal qualifications.

was changed, bar from some issues in translation.[27] Alongside translation help, they also aided me in understanding little cultural and political details that may have been missed if I conducted the interview myself.

Research assistants also influence the research process and outcomes (Deane and Stevano, 2016), and after I felt that my research assistant had comprehended the objectives of the research process, he would often provide follow up questions. These questions were typically of good quality and aided the research. Furthermore, they reminded me of my own conduct and wording and how it might be construed across cultural lines, and how what I meant as an innocuous statement may come across as more confrontational than I intentioned. For example, during one interview, an interviewee asked me if they felt that this would aid the government, and I responded that I do not think they government would listen to me. I had intentioned this to be a comment of my low academic rank as a PhD researcher compared to a lecturer or professor. During our interview debrief, my research assistant said that my statement came across as the government not listening to researchers.[28]

Treatment of my research assistant also revealed intentions and affiliations of certain interviewees. During one interview with Tanzanian bureaucrats, they were particularly hesitant to give answers beyond that everything was functioning as intentioned. When my research assistant asked a question stating some of the facts that contradicted their statements, one of them said '*acha'*, which is Swahili for stop, in the hope that I would not understand.[29] My research assistant sometimes acted as foil between me and the interviewee in the form of complaints; these complaints were from a few older men in the village of Madimba that complained that we did not provide them with meals.[30] Finally, one IOC respondent early on in the fieldwork was initially hesitant about expressing their views on the government due to the fact that my research assistant that day was wearing a green shirt, the colour of CCM. Once it had become apparent that we were not there on their behalf, nor CCM members, they were more forthcoming with their opinions, and mentioned the colour of the shirt. This reminded both of us about the little details that could change the

[27] A good example of this was the word 'affect' in my questions. While the word is neutral in English, in Swahili it is translated either positively or negatively. Because of the effect this could have had on responses, the wording of the original question was changed to make it more balanced and neutral to better gauge how the hydrocarbon industry has affected respondents.
[28] Fieldwork Notes, Mtwara, 16.07.2018. On a side note, I also believe this to be true.
[29] Group Interview, Ministry of Foreign Affairs Employees, Ministry of Foreign Affairs and East African Cooperation, Dodoma, 06.03.2018.
[30] Group Interview, Madimba Villagers, Mtwara, 12.07.2018.

interviewees perception of us, and after that we ensured that we wore politically neutral colours to avoid any political affiliation.

Research assistants also have their own positionality (Turner, 2010) and the colour of my research assistant's shirt also highlighted the positionality of my research assistant and how it could affect data collection. Being a Tanzanian male could have altered responses from female respondents. The largest power difference could have been from class; being an educated Tanzanian, working with a white man and knowing English could have enforced a power dimension between him and the interviewee, particularly in a village setting. Being from Dar es Salaam could have also influenced perceptions of us in Tanga and Mtwara. In one incident, a government official from Tanga asked my research assistant what his tribe was, something that was considered rude and reinforced the perception of hostility towards us during our visit in Tanga. There was a higher level of distrust of my research and intentions when my research assistant was present during interviews with the Tanzanian civil service, due to the fact that he was Tanzanian. Nevertheless, I decided to keep him for these interviews to aid in data collection, believing that the benefits outweighed the risks.

4 Ethics and Risks

4.1 Ethics

This project underwent SPS audit, which meant that there was to be no research of groups that could be considered vulnerable (children, refugees, addicts etc.), and was cleared by my supervisors. This was followed and no interviews of people that SPS deemed vulnerable was undertaken. For all interviews, personal data was stored on an encrypted memory stick with a 'kill switch', which activates if a person enters an incorrect password ten times in a row, upon which would activate and wipe the information on the memory stick. This memory stick also came with encrypted online storage, allowing me to access the data in the case of theft and/or activation of the kill switch. This presented both the best protection of personal and interview data as well as potential backup of data in case it was lost.

Previous research has highlighted how, in exceptional circumstances, payment may be made to access people for interview (Bachmann, 2011). I never felt that the circumstances of my research warranted payment for interviews. This is compounded by the fact this could also compromise data quality and voluntary participation (Robinson, 2014). No cash payments were given for interviews, although in some instances, I paid for the food and drink

of the interviewee if we had met in a café or restaurant. Those that had travelled to the location by public transport were remunerated for their costs.

I presented options to interviewees for preferences before, during and after the interview. All interviewees signed a consent form with options on how the data could be used (See Appendix C), this form was translated into Swahili for interviewees that did not understand English. While it is accepted that the provision of a consent form can alter the dynamics of the interview (Araali, 2011), this process was required to fulfil informed consent. Due to potential commitments interviewees had with scheduling, as well as ensuring that all respondents were comfortable, I let the interviewee have the choice of where to conduct the interview. I presented the questions in advance to interviewees if they requested it, often through email. For some interviewees, particularly in villages in Mtwara and Tanga, this option was not available, however, I did offer them to review the questions before the interview, an option that was rarely taken by village respondents.

For respondents in IOCs and working within state structures, I also gave the interviewee the option to be recorded. I did not record interviews at the village level due in part how the recorder's presence can alter the dynamics of the interview. Recognising that the recorder itself can alter the dynamics of the interview with its presence (Beamer, 2002), and considering the potential power dynamics being a white male with an urban Tanzanian research assistant, I did not wish to pressure and make respondents at the village level uncomfortable during the process. As fieldwork went on, it became clear that mid-level employees of various branches of the civil service did not want to be recorded, so I removed the option entirely, and reserved the option of recordings to the highest levels only. After the interview, a copy of the transcript was offered to respondents for them to examine in the case of any discrepancies. This was done through email. As mentioned above, there was some respondents without access to email, and transcripts were offered through email through village representatives with one. This offer was rarely taken up.

4.2 Risks

Unforeseen circumstances can seriously affect and alter data collection (Bachmann, 2011). Most of my time in Tanzania saw little interruption in data collection, however the exception to this was in Tanga. In the beginning of the Tanga visit, government officials stopped me and my research assistant to see my papers. Having handed my research permit, they asked to see my residency permit and passport, and claimed my permit was not valid

due to the lack of corresponding stamp in my passport. After deliberations I was told to go to the immigration office the following day.

For the next four days we were followed by the same officials that had questioned me. This was not just a risk for myself, but also for my research assistant and potential interviewees; being a British national meant that I believed if I got arrested, I felt that the worst-case scenario would be that I would simply be deported.[31] I had told family members and my supervisors about contact details at the embassy in Dar es Salaam if I did not talk to them in a specified time.

The risk to my research assistant and interviewees, all Tanzanian nationals, was far greater. I cancelled all meetings with interviewees and gatekeepers to ensure that there were no suspicions of them by the authorities following us. Me and my research assistant went back to Dar es Salaam for the correct paperwork. Upon our return, we were met with different officials who sought our papers. However, we did not feel that this time we were being followed, and thus after waiting a few days we carried on with data collection.

Further issues around my visit to Tanga emerged. These were chiefly around data collection in the village of Chongoleani, the site of the proposed oil jetty for the EACOP pipeline. Permission for entry was refused by the local government. The reasoning for this refusal had been that there were concerns that I would be given 'incorrect information' regarding land compensation, despite my repeated assertions that my research was not focused on land issues.[32] Concerns over land compensation severely hindered my time in Tanga.

4.3 Mental Health and Fieldwork

For first time researchers, much is centred around how a lack of knowledge around the physical risk of the researcher, and how to identify this risk and overcome unexpected realities (e.g., Gokah, 2006). During the process of risk assessment, a number of questions and thought focused on the physical risk of the researcher and the participants, but in hindsight there was little to no discussion or thought towards how periods of long-term fieldwork can affect the mental health issues of the researcher. Given the rise of awareness of mental health issues within academic and popular discourses, and having a mental illness, particularly more common illnesses such as depression and anxiety, has become more

[31] This incident occurred during the final two months of my research and thus most of the data had been gathered, and thus the risk to the overall data collection was lower.
[32] Fieldwork Notes, Tanga, 18.08.2018.

understood. In hindsight, this lack of preparation in risk assessments for the mental health of the researcher, was a surprise. This is reflective on the lack of literature on the subject as whole. While there are improvements of the acknowledgement of mental health pressures in academia as a whole, this has not yet transferred to mental health in overseas fieldwork. The exception to this has come from Pollard (2009), and the anthropology blog, *Anthrodendum* (2019). While both acknowledge the difficulties of fieldwork on mental health, particularly in regard to trauma, this section looks to put forward the removal of coping mechanisms that had been built previously rather than events that caused a fundamental shift in mental health.

Before I discuss my experience of mental health during my fieldwork, I want to add that the majority of my fieldwork was incredibly enjoyable; to live and research in another country and gathering empirical evidence is extremely gratifying, and an experience I will never forget. When I first started my fieldwork, it was the first time I lived in another country; the first time I have had a period of extended research; and the first time I had ever visited the African continent. Overall, it has been incredibly rewarding. However, fieldwork brings forward changes and issues which can dramatically affect mental health, and can seriously impact on data gathering, and more importantly, your personal wellbeing.

Since my early teenage years, I had been medically diagnosed with depression. I have seen therapists and been on antidepressants, but I feel that I am no longer in a place where I need to see them anymore. This help, combined with repetitive bouts of depression, have allowed me to see, but not fully prevent, periodic mental downturns, and to turn to actions that I have previously used to help me become better. My support network is as much preventative as it is reactive. My preventative actions chiefly include team sports for social as well as physical wellbeing. When a bout of depression hits, I look to (in hindsight, eventually) seek help with those closest to me. The reason I mention this is simple: fieldwork removed these preventative and reactive measures and added new stresses which I had not encountered before.

One thing I should have prepared for was the removal of the support network that I had looked to establish to help with mental health issues. Constant movement, of both myself and friends around me, meant that a social foundation that could be used as a support network was constantly shifting. The end result of this was isolation for long periods of time. Research can be a lonely and isolated process, and during my own depressive bouts I would often become a recluse. Considering the main data collection was interviews, this itself was

a hinderance that did affect some time periods where research was not going as well as hoped. Furthermore, when research is not progressing as well as planned, morale can plummet, and this not just affected myself, but also my research assistant. This does highlight how the mental health of a person cannot just affect yourself, but also those around you during data collection.

One of the largest symptoms of depression is a lack of motivation. With snowball sampling not progressing the number of interviews that I had hoped it would, it did present an experience of feeling that little to no progression in the research. This was exacerbated by the time constraints placed by fixed dates of fieldwork and putting on a front that added to mental exhaustion that is already strained by data collection, speaking, and learning a second language and living in a different environment can bring.

5 Conclusion

This chapter has sought to establish the methodological tools utilised for this thesis, as well as the challenges that occurred during fieldwork. This is not just based on research based during fieldwork, but also after, as 'research continues as we reflect' (Bourke, 2014: 1). These experiences hold lessons not just for my future career in academia, but also wider lessons for the practicalities of research. Firstly, it highlights the new difficulties faced in researching in Tanzania during the Magufuli presidency. This now may be even harder than during my time due to the fact that there has been tighter observation of COSTECH than when I applied due to research published that suggested a decline in popularity for the president (The East African, 2018a). Furthermore, it highlights both the initial plans before fieldwork, and the changes in methodological strategies that had to occur due to changes in personal and political circumstance. Responding to these was not just essential for data collection but also ensured that such data could be considered reliable. The data collected cannot be understood without also exploring the circumstances, both at the international, national, local, and personal level that led to the data being collected.

This chapter has also sought to reflect how my presence has affected data collection, as well as events, particularly in Tanga, that explain how and why my data was collected in a certain fashion. It also highlights a current under-explored issue within academia: mental health in the field. It is hoped that this would aid a discussion on how to better prepare researchers, particularly aspirant researchers, to prepare for a deal with mental health issues

in new environments that may not fully understand or appreciate how such health problems can be created or exacerbated.

Chapter IV: Piping Away Development: The Material Evolution of Resource Nationalism in Mtwara

1 Introduction

Over the past decade, following the discovery of natural gas, the south-eastern region of Mtwara, Tanzania, has rapidly changed from an energy 'backwater' to a global 'frontier' for oil exploration companies and international capital. The discoveries coincided with political promises and expectations of unparalleled economic growth and social development. The most infamous examples of this was the statement by Kikwete in 2010 that 'Mtwara will be the new Dubai!' (Stølan *et al,* 2017; Must and Rustad, 2019). Yet, on the 22nd May 2013, after months of protests, riots erupted in the city of Mtwara over the confirmation of the construction of a gas pipeline that would connect gas from Mnazi bay, Mtwara, to the Kinyerezi power plant in Dar es Salaam. For a country whose political stability had been seen as 'legendary' in Africa (Green, 2011: 224), the scale of political violence was both a rarity and a shock.

Whilst fieldwork occurred in 2017 and 2018, the protests and riots of 2012/13 were still a part of the discussion of the gas industry in the south of the country. In an interview with a regional CCM official in Mtwara, one respondent talked at considerable length of CCM's version of events during the riots, although this was completely unprompted, and I had just claimed to be researching gas in Mtwara.[33] In this interview, he accused business actors that stood to lose from the pipeline for inciting the protests against the government.[34] This conspiratorial theory was repeated to me by an IOC executive.[35] Such a theory stood in contrast with interviews with protestors, who claimed that they wanted more local development from the gas, and that the crackdown and riots were caused by these 'misunderstandings'.

[33] Interview, CCM Regional Party Administrator, CCM, Mtwara, 13.07.2018.
[34] This theory suggested that businesspeople that imported diesel for electricity generation were inciting the violence. The diesel that was imported would be replaced with the gas piped from Mtwara with diesel generators that had been converted to generate electricity with natural gas instead. While this theory was suggested to me from multiple sources (and suggests a clandestine network working against the wishes of the government), no charges had been brought forward against any individual or organisation.
[35] Interview, IOC Senior Executive 3, Dar es Salaam, 13.02.2018.

This chapter explores the evolution of Mtwara resource sub-nationalism in the gas industry, its connections to wider Tanzanian resource nationalism and the eventual frictions that were generated. The concept of resource sub-nationalism has been spearheaded by Childs (e.g., 2016), who, alongside Ahearne, argues that natural gas in Mtwara has fragmented citizenship between the southern regions and the rest of the country (Ahearne and Childs, 2018). This chapter agrees with this analysis, and further argues that the apparent developmental quality of natural gas created a discourse that the resource would catalyse industrial development, however, the perception of where this development occurred is one of the ruptures between the resource imaginaries of the Tanzanian government and the Mtwara population. This was exacerbated with political promises made by politicians during election years, which fuelled imaginaries of a future where development will be powered by natural gas.

This chapter argues that the construction of infrastructure has guided the evolution of Mtwara's resource sub-nationalism; firstly, the construction of improved electricity access and roads allowed for an imagined prosperous future to begin to materialise. However, the construction of the Mtwara-Dar es Salaam pipeline brought friction between Tanzanian resource nationalism and its regional Mtwara counterpart. The resulting fallout of the protests and the construction of the pipeline was the loss of a gas-powered future, whereby the developmental promises of the pipeline were being taken away from Mtwara and piped to Dar es Salaam.

This chapter is structured as follows: it will first provide some historical background to the region of Mtwara for this chapter and the next chapter. Following on from this is a greater discussion of Tanzanian resource nationalism, and how the material properties of natural gas has allowed it to be imagined as a resource for industrial development in industrial and development plans. Section three details the beginning of the discovery of natural gas in Tanzania, and how the discovery allowed for increased investment into the region and brought about the first visible changes of 'modernity' to the city and surrounding areas. Section four explores the pipeline protests, and how the construction of the pipeline changed the developmental imaginaries that had been created previously and how the government utilised a discourse of national development to discredit the protestors demands. Section five follows on from this with a discussion of how Tanzanian resource nationalism has exacerbated core-periphery tensions, and how the imaginary of gas-led development has subsided with the material realities of the gas sector. Section six concludes.

1.1 A Background to Mtwara

Described as the 'Cinderella region of a Cinderella territory' by British colonial administrators (Liebenow, 1971: 11),[36] the south-eastern region of Mtwara is one of the most economically neglected regions within Tanzania. The region is inhabited by the Makonde, whose lands cover present day Southern Tanzania and Northern Mozambique. They are one of the largest ethnic groups in Tanzania and are often referred to as *Wakusini* (southerners) by their northern counterparts. Despite considerable the numerical size of the Makonde, and the geographical size of Mtwara itself, the region, alongside the neighbouring region Lindi, have had a history of low economic development and political marginalisation. This has been compounded further with stereotypes that the Makonde are 'backwards' and the region as a whole being viewed as a 'static, isolated, backward periphery – within Tanzania and the world as a whole' (Lal, 2015: 2). The capital of the Mtwara region is the city of Mtwara and is the closest city with a deep-water port to the onshore and offshore gas sites in Tanzania.[37]

During the colonial era, when compared to the northern regions of colonial Tanganyika, the southern region was generally ignored by the German and later on, the British colonial administrations. This was in part due to the lack of exploitable resources in the region, and lack of road infrastructure, with transport by lorry only becoming possible in the late 1920s (Rizzo, 2006). The southern region, and in particular the port city of Mtwara, only begun to economically develop during the Tanganyika groundnut scheme,[38] which started in 1946 and ended in 1951. Described as 'probably the most dramatic and most cited failure of the ambitions of British late colonial developmentalism' (Rizzo, 2006: 205), the groundnut scheme was conceived as a way to address the world shortage of vegetable oils and fats during the immediate post war period. However, insufficient planning was carried out on the ground, and officials instead relied on aerial reconnaissance to survey whether the area was suitable for large scale groundnut production. A range of factors, from insufficient rainfall, high clay content in the soil, and disease, ensured that the scheme would end in disaster (Coulson, 1977).

[36] The Cinderella province of Mtwara 'implied the feminised, passive Southeast would be saved by the agentive prince of scientific development and colonial capitalism' (Lal, 2015: 142). This legacy of perceived passiveness towards development has remained, although scholarship has argued that this is untrue (Seppälä and Koda, 1998).

[37] From this point onwards, 'Mtwara' will refer to the city of Mtwara, while the 'region of Mtwara' will be designated when discussing about the wider Mtwara region.

[38] Groundnuts are now more commonly known as peanuts.

While the failure of the scheme resulted into a reversion of the status quo by the colonial administration, the groundnut scheme did allow for some forms of infrastructure development. The most notable of these were the expansion of Mtwara and the construction of a deep-water port intended for groundnut exports. Furthermore, the cultivation of cashew nuts, which began in the 1930s, saw the establishment of an export-based economy around the nut from the 1940s. By the time of independence, cashews became the country's fourth most valuable export commodity (Lal, 2015: 139). While the volume of cashew exports would rise and fall, the cashew nut industry would provide the backbone for the region's economy to the present day.

During the time of independence, the concept of the southern regions being a passive 'Cinderella region' persisted. However, unlike the colonial era, government intervention in the region increased, although this proved to be unbeneficial to those living in the southern regions. Villagisation efforts started in the region in the 1960s and was implemented at a far greater pace and scope than any other region in Tanzania (Lal, 2015). This was in part due to the fact that the region was picked as a region to experiment with the policy (Lal, 2015), but it also allowed the Tanzanian state to set up countermeasures to protect villagers from armed attacks of Portuguese troops, who were searching for Mozambiquan guerrilla fighters (Seppälä and Koda, 1998). Cashew cultivation continued to rise during the 1960s, but by the early 1970s, relocation demands placed on the region by villagisation made cashew abandonment a widespread problem, causing an extreme fall in production from 1974 onwards (Lal, 2010). This decline would continue until the 1990s (Lal, 2015), and reflected the wider difficulties of achieving regional development during the 1970s and 1980s.

With colonial and post-colonial administrative failures to promote economic growth in the region, contemporary Mtwara still lags behind its northern counterparts in terms of economics and social indicators. After a recovery in the production and export of cashews, contemporary Mtwara has an economy primarily based around agriculture, with cashew nuts being the largest commodity. The southern regions are still considered undeveloped, with a Human Development Index score of 0.515 in 2017, which places it in the category of low human development and is below the Tanzanian national average (Radboud University, 2020).[39] There have been attempts to economically rejuvenate the region through infrastructure projects. Built in 2003, the Mkapa bridge, helped to connect Mtwara and the

[39] This average includes Zanzibar, which is the most developed region of Tanzania and thus may skewer the national average if compared to just the mainland regions of Tanzania.

southern region in general. Before the bridge was built, poor weather, particularly during the wet season, could sever the region from the rest of Tanzania, with road journeys taking days or weeks, compared to the eight or nine hours it takes now. However, road infrastructure in general is still poor, with the road connecting the city to Dar es Salaam only being fully paved in 2015 (Must, 2018).

Alongside the Mkapa bridge has been the Mtwara Development Corridor, which is aiming to provide road, rail, and waterway access of the southern regions of Tanzania, eastern Malawi, eastern Zambia, and northern Mozambique to the port of Mtwara. Despite a new bridge connecting Tanzania and Mozambique and several hundred kilometres of new roads built, the corridor is considered as not having the required ingredients for a successful corridor, and lacks political support (Mtegha *et al,* 2012). It is also worth noting that, despite a history of marginalisation and administrative neglect, there has been little violence in the region, with the exception of the pipeline protests in 2012/3. It is in within this background of perceived government negligence, and lack of material goods and infrastructure that the discovery of gas was perceived to provide a reversal of fortunes for the region.

2 The Developmental Materialities and Imaginaries of Natural Gas

Compared to other nations in Africa and Latin America, Tanzania has a less ingrained history of extraction, particularly in hydrocarbons. The core of the rhetoric utilised by state officials has been developmentalist in its approach to the gas industry, whereby it quickly became a part of Tanzania's goal to be a middle-income country by 2025 (GoT, 2000). To aid this, gas will be utilised 'to all sectors of the economy for maximum benefit and [to] alleviate poverty to Tanzanian society' (GoT, 2015b: 4). As this section will show, it is the rhetoric of development, alongside a national project that seeks to apparently treat the country on equal footing, that has the strongest influences on a nationwide resource nationalism.

One of the largest influences on the developmental imaginaries of natural gas has been the materiality of the gas itself. Industrialisation and job creation are central to Tanzanian development plans (Paget, 2020), and in this instance, the materialities of natural gas allow it to be framed as a developmental resource; natural gas can be used in electricity generation or as a raw resource in basic industries, particularly in fertiliser production. Both industrialisation and increased electricity access and generation being an indicator of modernity in the country (Winther, 2008), and therefore natural gas has become a key

component of Tanzanian economic development. This industrialisation and electricity generation was to be undertaken at both the national level and at the sub-national level, with claims for gas to benefit both the whole country and the Mtwara region through the increase of electricity provision, and industrial development.

The non-renewable nature of natural gas extraction has led to pressures to ensure that the resource is used effectively for national development. As national plans have claimed the country 'may receive criticism from the next generation that the country has handed the un-renewable national resources to foreign capital without making enough return' (GoT, 2011a). Adding to vision of the future is also memories of the past (Paget, 2020). Some of the discontent around achieving development from natural resource extraction has been informed by the memory of the socialist era and Nyerere's opposition to foreign private investment (Poncian, 2019b). The liberalisation of the extractives sector has been challenged by the election of Magufuli, who has been placing the party more closely to the socialist era of Tanzanian politics since his election (Ahearne, 2017). While there is little history of natural resource extraction, Magufuli instead wants to rely on the popular historical memory of African socialism both to legitimise his leadership and to promote a developmentalist discourse around natural gas as a developmental resource that aids self-reliance (Ponican, 2019b; Paget, 2020).

Improving energy infrastructure has been a mainstay for Tanzanian industrial plans (GoT, 2011b; GoT, 2016b), with the theory that an increasingly available and reliable energy supply will in turn aid the manufacturing sector. The government has projected a substantial increase in utilising domestic hydrocarbons for electricity generation in the future (GoT, 2014a). Natural gas is estimated to contribute to 40% of the country's electricity supply by 2040 (GoT, 2016b), up from 32% in 2014 (GoT, 2015a).[40] There has been an expectation that this gas will sourced from domestic sources, rather than imported. This ties into the current narrative of energy security in the country, which is presenting hydrocarbon extraction as a matter of national security to ensure increased energy generation (Jacob, 2017).

Alongside electricity generation, unprocessed natural gas can be used to produce agricultural fertiliser. Tanzanian natural gas has been described as 'industry friendly' (GoT, 2011b: 68). This is particularly important for Tanzanian development due to demands in the agricultural sector, which is currently reliant on imports. Mtwara was central to state-

[40] Note, while this seems a small increase percentage wise, there is expectation that electricity generation will increase substantially from the present to 2040.

planned industrial development centred around natural gas. The region was chosen as the site for a special economic zone that focused on the manufacture of petrochemicals, and a cross-border 'minerals corridor', that was planned to aid the construction of industries based around natural resources (GoT, 2011a). Regardless of the sometimes-conflicting strategies of utilising gas for both national and regional development, one thing is true for both the national and sub-national level: These industrial plans and strategies foresaw gas playing a major part in Tanzania's development.

Industrial plans promoted natural gas as an industrial resource, rather than a resource that could be exported to increase government revenues. These industrial projects were not just confined to national development plans and government papers, they shaped the discourse around gas as a developmental resource. The electricity generated around gas was described as 'cheap', and 'clean' (GoT, 2011b). On the global energy scene, this is true; gas turbine electricity generation ranges from $44 to $73 per MWh, beating offshore wind, coal, and nuclear power (Lazard, 2020). However, it still is more expensive than both solar and onshore wind power, which ranges from $29 to $42 and $26 to $54 per MWh respectively (Lazard, 2020).[41] Plans around utilising gas for industrialisation were well known throughout Mtwara, with all interviewees expecting some form of industrial development from extraction. Promises by politicians during the electoral campaign exacerbated expectations of gas-based development (Poncian, 2019a). In particular, the 2010 election brought this imaginary to the forefront.

Resource nationalism also entered the discourse around industrial development plans. This was both for national and foreign policy. On the international stage, while the IOCs operating in Tanzania are focusing on the export of LNG to East Asian markets, Tanzanian documents have focused on the internal development gas can provide. Instead of prioritising export and the revenues it could generate for the country, there appears to be a push to use the gas itself for development. This is due in part due to concerns of the 'resource curse', particularly over concerns of the 'Dutch disease'.[42] The integrated industrial development strategy note that gas export would be 'a serious challenge to industrialisation' (GoT, 2011b). One can see this policy in action in the mining sector, as bans on exports have already occurred in the gold and coal sector (e.g., Jacob, 2020; Roder, 2019). Furthermore, the

[41] It is worth noting that this is for global energy prices. Up to date Tanzanian comparisons of sources of energy and their cost per megawatt or kilowatt were not found.

[42] The Dutch disease refers to the spike in the value of a nation's currency, typically after a country begins natural resource exploitation. The increase in the value of the currency can lead to a drop in exports of other sectors in the national economy.

natural gas policy explicitly states that 'natural gas will be exported when the domestic market has been satisfied' (GoT, 2013: 4). Currently, all natural gas extracted in Tanzania serves the domestic market. However, the industrial and energy plans include utilising gas for industrialisation in petrochemicals and an increase in electricity generation (GoT, 2013; GoT, 2014a; GoT, 2015a). The question of the future use of gas, either in the form of export or domestic consumption, has already begun to create friction between the government and IOCs.[43]

Internally, while industrial plans were made for Mtwara, the discourse remained that it would benefit the entire country. Prioritization of gas was given, rhetorically, for the whole country, not just the region where it was discovered (GoT, 2011a). One of the core goals of natural gas extraction for the Tanzanian is the 'optimization of benefits to the government and the people of Tanzania through strategic participation, interventions and *equitable* benefit sharing' (GoT, 2013, italics added). The discourse of gas benefiting all of the country would become most prominent during the protests and subsequent riots in Mtwara.

Tanzania's resource nationalism within the hydrocarbon sector has been influenced both by the historical developmentalist narrative of African socialism, and the imaginary that gas as a resource is malleable towards a developmentalist agenda centred around industrialisation. However, many of the imaginaries put forward by the government have been national in scope and emphasise that the nation as a whole will benefit from the gas. The materiality of gas ensured that, when compared to other resources, there was a greater chance for wider developmental potential when compared to other resources like gold or tanzanite; gas can be transported by pipeline and converted into electricity, either with gas turbines or converted diesel turbines, but this would be at the detriment of proximity industries that could be built near the gas producing area. These material properties, combined with the government's insistence that natural resources are for all Tanzanians, ensured that a confrontation could take place between a nationalism and a regional identity.

3 Mtwara Resource Sub-Nationalism

3.1 A Neglected Periphery

Many of the imaginaries that constituted Tanzanian resource nationalism also found themselves in a Mtwara resource sub-nationalism. Interviewees on the whole expressed similar sentiments to the overarching imaginaries given by the Tanzanian government: that

[43] Interview, Senior IOC Executive 4, Dar es Salaam, 14.03.2018.

gas will aid development, particularly around electricity generation and industrialisation. Nevertheless, there are some other factors which shaped a distinctive sub-nationalism over the natural gas found in the region. Central to this was a historical perception that the region has been left behind when compared to other regions. The introduction of a global industry that has considerable sums of capital into a region that had been on the periphery both in terms of the country as well as the global economy, further fuelled an imaginary of an economically developed Mtwara. There was a hope that the gas industry could bring a 'second independence' to the region.[44]

As mentioned before in the introduction to this chapter, Mtwara has often been seen as left behind in terms of economic development. The discovery of gas changed the perception of the region, this was noted by both other Tanzanians, who had started to view the region as a potential investment destination, and the people of Mtwara themselves. As one Mtwara local government administrator told me: 'Mtwara was regarded as a peripheral backward area…then came the gas!'.[45] In many ways, gas did put Mtwara on the map, not just in the country, but also in international capital in the form of investment from IOCs.

The biggest (and most unsurprising) difference between the Mtwara and Tanzanian government's resource nationalism was the degree of localism present in the Mtwara. On the whole, interviewees from all social strata would claim that they would want the gas industry to benefit the region before other areas of the country. These benefits were material in nature, with answers focusing on industrialisation, electricity provision and offers of employment. In comparison, direct access to revenues were not brought up by interviewees. Rather, the focus on the material development of infrastructure and industrialisation, buoyed by political promises aided the creation of an imagery of a gas fuelled future. This was highlighted in a group interview in Ruvura, the village in closest proximity to the gas extraction sites, where one of the villagers claimed:

> 'We hoped that we would be the first ones to benefit more from the gas than other parts of Tanzania. We were promised a lot by politicians who came to campaign in our villages... We know many people in Mtwara are not educated, so many of us could not work in the gas industry, but we wanted the benefit which came alongside the gas industry. We wanted factories that were promised in Mtwara after the gas exploration. Through that we could benefit more from the gas industry. We hoped we could get employment chances in the factories first, then other people from outside Mtwara could benefit after. We hoped they would consider us locals first.'[46]

[44] Interview, Member of Parliament, CUF, Dar es Salaam, 14.03.2018.
[45] Interview, Senior Mtwara Local Government Officer, Mtwara Municipality, Mtwara, 26.07.2018
[46] Group Interview, Ruvura Villagers, Mtwara, 05.07.2018.

It has been a common theme within extractive literature to suggest that it is rare for those in closest proximity to benefit from natural resource extraction due to enclave development, and instead, often suffer more from it (e.g., Auty, 2006; Watts, 2007; Ackah-Baidoo, 2012). What is telling is that there was at least acknowledgement of the limits that the gas could bring due to the lack of human capital present in the region. Furthermore, it also demonstrates a degree of what the future could have brought to the region; gas increased the perception of increased pace towards industrialisation. Sentiments similar to the statement above were common from interviewees, particularly from poorer and less educated respondents.

Mtwara resource sub-nationalism was influenced by other natural resource sectors in the country. Unlike the government's experiences with the gold industry before the discovery of gas, which focused on the mistakes made during the growth of that industry in the 1990s, much of the Mtwara imaginary of the apparently positive developmental potential was focused on the tanzanite sector. The discovery of gas was described as giving the region a 'tanzanite in Arusha kind of hope'.[47] This further aided the southern resource sub-nationalism's focus on jobs and development, whereby the tanzanite industry has seen attempts by the government to generate local proximity industry (e.g., revenue collection, stone cutting) that both adds value to the resource and provide a direct benefit to the region (Kinyondo and Huggins, 2019). Less important was the actual benefits and difficulties of tanzanite mining (see Helliesen, 2012; Kinyondo and Huggins, 2019), but rather the perception in the southern regions that regions in the north were benefiting from natural resources. It is worth noting that due to the well-publicized difficulties of the gold sector, gold was not mentioned by respondents.

With this perception of the past, combined with the imaginaries of natural gas put forward by the central government, gas did not just change perceptions of development, and therefore the future, but also the pace of such development. Much of this imaginary was material in foundation; the pace of development would be judged by the improvements in infrastructure and the level of industrialisation that was promised by the government.

3.2 'These are Permanent Changes': Infrastructure and Development

From the beginning of the gas industry, imaginaries were intertwined with the development of infrastructure. This is due in part to the low levels of infrastructure found in

[47] Interview, Senior Hotel Manager, Tiffany Diamond Hotel, Mtwara, 18.07.2018.

the region; since the discovery of gas in the 2000s, the southern regions have yet to be attached to the national grid (Fernández, 2017). Furthermore, before the construction of the Mkapa bridge in 2003, the southern regions were cut off during the wet season from the rest of the country due to the lack of passable roads. This isolation in infrastructure is coupled with the imaginary within both developmental and government discourse that infrastructure is presented as a physical form of modernity (Larkin, 2013). Hence the materiality of the gas sector in Mtwara was not just coupled with what the gas could directly bring in terms of industrialisation and employment, but also indirectly with infrastructures built to accommodate the industry and its workers.

The early stages of gas exploration saw an increase in infrastructure development. When asked about what the gas industry had done for the area, Mtwara interviewees, particularly elderly and middle-aged respondents, would often shape their answers to the construction of three forms of infrastructure: roads, electricity, and construction. It has been common to describe poverty in relation to access to infrastructure, particularly in the form of roads (Porter, 2002), and the case of Mtwara was no different. Main roads were tarmacked and improved for increased road traffic, particularly around the port and a part of the route leading to inland gas extraction sites.[48] Discussion around buildings centred on high class hotels and modern houses constructed to cater for IOC personnel.

This improvement to the infrastructure network, from the mundane of a tarmac road, to modern hotels,[49] highlighted the apparent visible march of 'modernity' to the region. Business owners in the region also highlighted the materiality of capital entering the region in visible forms with the increase in the number of banks servicing the city.[50] The rapid pace of much of this construction further strengthened the imaginary that gas would be the catalyst for development. Furthermore, a gas-fired power plant was commissioned in 2008 and has added 18MW to the Mtwara-Lindi micro-grid, and in 2013 a deal announced for the construction of a 600MW gas-fired power plant in the region. In many respects, these developments allured the linear modernity similar to those seen in other extractive sectors on the African continent (Ferguson, 1999).

[48] The main roads leading up to the port were still visibly new and were a noticeable improvement compared to the other roads in the city. Furthermore, the road leading the Mnazi bay was also partially tarmacked, although further construction all the way to the extraction site has halted.
[49] Before the gas industry, there were no hotels in Mtwara city, only guesthouses.
[50] Interview, Businessperson, Mtwara Chamber of Commerce, Mtwara, 10.07.2018.

Politics played a considerable role in this construction to link the gas industry to regional industrial development. One of the major events that catalysed the imaginaries of what natural gas can provide was the 2010 general election, which occurred during the exploration period where considerable gas deposits were being found offshore. The most extreme of these imaginaries, and one that was repeated throughout fieldwork, was that 'Mtwara will be like Dubai!'. Slogans like these massively shifted expectations on what gas could bring to the region by comparing it to one of the richest regions of the planet, and in doing so, altered imaginaries of the future to one of extreme prosperity. In essence, the imaginaries of rapid industrial development would have not occurred in Mtwara without the government exacerbating these perceptions with promises that seem almost outlandish in nature.

The rapid pace of development of infrastructure in Mtwara highlights that the promise of gas for development in the region was not just based on rhetoric but had begun to be put in place. The gas industry quickly became more than just an industry for the region, it was imagined to be the key to unlock industrial development and gain government attention in a region where there had been strong feelings of neglect. The gas industry was perceived as central for this reversal in fortune. From this perspective, gas represented not just a direct financial opportunity, but rather the catalyst of economic development that could employ people beyond the immediate gas industry. Because of this, the gas industry became synonymous with development itself, and early on became tied to the wider economic performance of the region. Electoral politics allowed for the binding of an imagined prosperous future and the gas sector to construct a resource sub-nationalism in Mtwara that saw both as indistinguishable.

4 Pipeline Protests and Riots

The Mtwara pipeline protests were a series of protests from December 2012 to June 2013, and it ended in violence and several deaths. Plans for constructing a pipeline from the land-based gas sector in Mtwara to Dar es Salaam for electricity generation had been discussed since at least 2011, as a part of the government's five-year plan (GoT, 2011a). The pipeline itself was 542km in length and was built to a cost of approximately $1.22bn, which includes the construction of a gas processing plant in Dar es Salaam for electricity generation. Construction was done by the China Petroleum and Technology Development Company. The project was also marred in a corruption scandal whereby $600m was lost both in China and

Tanzania (The Citizen, 2016). While protests began in December, riots over the pipeline occurred in two stages, first in January, and then on the 22nd May 2013, after it was announced in the national budget that the pipeline construction would be going ahead. This was a protest purely against the government, rather than IOCs. While there were issues between the local communities and IOCs operating in the region, IOC officials who were in Mtwara during the protests said they were not worried about their personal safety.[51]

The decision around the pipeline should not be underestimated, as it dominated the day-to-day life of those situated closest to the gas industry. The majority of respondents interviewed from Mtwara objected to the construction of the pipeline. This was to such an extent that even the traditional greetings in Mtwara changed from *As-salamu alaykum* ('Peace be upon you', a traditional Arabic greeting), to *inatoka au haitoki?* (it [gas] comes out or not?).[52] The clampdown 'resulted in death, beatings and fighting',[53] with some of those interviewed having to flee their homes out of fears of their lives,[54] and one respondent even subjected to torture by government forces for his role in the protests.[55]

At its core, the clampdown this was due to the government perceiving the protests as a direct challenge to their authority. Government discourse throughout the protests and riots centred around the idea that gas is a *national* resource rather than a sub-national one. During the crisis, Kikwete reiterated a discourse that natural gas is a national project, claiming that:

> 'I believe it is something unacceptable that national resources can be restricted only to the place where they are found…it has never happened in any country of this world, there is no such policy anywhere, and it cannot start from Mtwara' (Kikwete, 2013, found in Balile, 2013).

CCM officials blamed local politicians, claiming that they are 'myopic', 'selfish' and are 'inciting the population against the government' (Wall Street Journal, 2013). In this regard, the localism of the utilisation of gas contrasted with the government rhetoric that gas was to benefit the whole country. The one nation discourse even indirectly questioned the citizenship of the protestors, with the energy and minerals minister, Sospeter Muhongo, claiming that 'anyone who opposes this pipeline is not one of us' (Reuters, 2013a).

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[51] Interview, IOC Engineer 1, Dar es Salaam, 22.02.2018; Interview, IOC Engineer 2, Dar es Salaam, 02.03.2018; Interview, IOC Engineer 3, Dar es Salaam, 28.06.2018.
[52] Group Interview, Mtwara City, Mtwara, 07.07.2018.
[53] Madimba Group Interview.
[54] Interview, Cashew Farmer 1, Ruvura Village, Mtwara, 23.07.2018
[55] Mtwara City Group Interview. This made national headlines and the interviewee showed both the newspaper headlines and the scars made during the torture.

The government and CCM officials argued that the protests were a party-political issue.[56] However, the actions of the local population suggested otherwise. This can be seen with the demonstrations themselves; the demonstrations were organised by eight opposition parties,[57] and publicly claimed that 'natural gas comes before political party affiliations' (The Citizen, 2013b). While these were organised by opposition parties, the protests also obtained the support from the CCM MP for Mtwara Urban, Hasnain Murji, and the Mtwara-Mikindani CCM Chairman, Ali Chinkawene (The Citizen, 2013c). Furthermore, such a sentiment was expressed by the protestors themselves, with protestors holding placards saying, 'Gas first, parties later, here nothing [gas] goes' (Figure 8), and 'gas remains or we divide the country' (Figure 9).

Even with a discourse of portraying the protestors as selfish and un-Tanzanian, the government also utilised the same imaginaries that aided the construction of the Mtwara sub-nationalism in the first place to appease the protestors; former President, Benjamin

Figure 8: 'Gas first, parties later, here nothing [gas] goes' (The Citizen, 2013b).

[56] CCM Regional Administrator.
[57] These were Chadema, NCCR-Mageuzi, SAU, TLP, APPT Maendeleo, ADC, UDP and DP.

Figure 9: 'Gas remains or we divide the country' (The East African, 2013).

Mkapa, himself a *Makonde* from the southern region, came to the region to calm tensions in January (The Citizen, 2013a), with promises of jobs and industrialisation, which included promises of 57 factories in the region (The Citizen, 2013a). Alongside this, Kikwete, despite his hard stance towards the protests, still promised that 84% of the gas would remain in Mtwara (Kamat, 2017). In this respect, the Tanzanian government was promising the same imagined future that it promoted before the announcement of the pipeline. This still centred around keeping natural gas in the region, but more importantly, keeping the promise of industrialisation (and accompanying jobs) that the gas was supposedly to bring.

4.1 Misunderstandings?

Many interviewees, particularly those that had been directly impacted by the protests, claimed that the riots were a misunderstanding between the protestors and the government. Central to this misunderstanding was the friction between two resource nationalisms; the government believed that the protestors wanted to keep the gas for themselves, which is antithesis to a resource nationalism that looks to provide development for the entire state. On the other hand, for the people of Mtwara, construction of the pipeline was the material confirmation that gas would be taken away from the area to be processed in Dar es Salaam, and with it removing the catalyst for economic development in the region.

The construction of material infrastructure in the form of an export pipeline was removing the sub-regional imaginary of development being led by a gas industry, and the Mtwara protests and riots were the most visible example of the friction between competing

resource nationalisms. Thus, the entire foundation for an imagined prosperous future that had been allowed to flourish and promoted by the government years before was going with it. One respondent during a group interview highlighted in hindsight the how the politics of gas furthered the misunderstanding between the two nationalisms:

> 'During the exploration activities they promised milk and honey to everyone in Mtwara, then the people this saw milk and honey is being taken to Dar es Salaam. In short, we demanded to see if it will be possible to that all the gas extracted in Mtwara can be processed in Mtwara, so that we can benefit from the whole process, then we can transport it to Dar es Salaam as a finished product. But the political leaders thought that the Mtwaran people were being selfish and did not want to share the resources found.'[58]

The risk of jobs that had not yet materialised, rather than the physical presence of gas, was the main concern of protestors. Hence, it was not just the gas itself that was being taken away, but also the imagined future of industrialisation. The pipeline thus became a symbol of removing development from the region. Steven Graham and Simon Marvin have argued that infrastructures are seen to be 'instigating waves of societal progress' (Graham and Mavin, 1996: 42). In this case, the Mtwara-Dar es Salaam pipeline suggests the opposite. The imaginaries of future prosperity and industrialisation were being taken away with the gas to Dar es Salaam, and with this came the removal of the perceived promise of jobs and industrialisation which were central to the image of a developed Mtwara.

As noted by Larkin (2013), infrastructures are not just technical projects, they also operate on a level of fantasy and desire. Before the construction of the pipeline, and the surrounding protests, it was clear to see both of these factors with the political promises of industrial development. Yet the realities of the industry and government strategy changed matters. With the construction of an export pipeline, the materialities of the now-existing gas industry were working against the imagined future constructed years before. The construction of the pipeline massively changed the resource sub-nationalism that emerged in Mtwara. Alongside this was a delegitimization of protestors demands through the prism of national development; as Ferguson argues in *The Anti-Politics Machine* (1994), discourses of development imagine futures and can delegitimise popular demands. As the government portrayed the project as essential for national development through electricity generation, it in turn questioned the loyalties and citizenship of the protestors for the nation to develop. In this respect, the imagined future of a prosperous future of Mtwara was portrayed as being in contrast to national development, and therefore success.

[58] Madimba Group Interview.

5 Piping Away Development

The construction of the Mtwara-Dar es Salaam pipeline rapidly changed the relationship the Mtwara population had with both natural gas and the government. While the government achieved its aim of constructing the pipeline for electricity generation, the strategy behind the construction alienated and frustrated those closest to the project. With Tanzanian resource nationalism claiming to utilise natural gas for the development of the whole country, it is paradoxical that it reinforced historical imaginaries of neglect within Mtwara, and in particular, industrial development in Dar es Salaam.

5.1 Reimagined Futures

With the construction of the Mtwara-Dar es Salaam pipeline being completed in 2015, the post-protest period of Mtwara has seen a change in the imaginaries of what gas can provide to the region, and therefore a change in the resource sub-nationalism present. While the protests have ended, they have provided a change in the social interaction with the gas industry; shops in Mtwara now close on the anniversary of the riots,[59] and there is a 'scar' of distrust between government forces and the people,[60] which has led to some of the respondents to feel that they are not Tanzanian, rather they are *Kusini* (southern).[61] Despite this, there was no separatist sentiment encountered during my time in Mtwara. There has also been a change in the political landscape, where the Hasnain Murji, CCM MP for Mtwara Urban, lost his seat during the 2015 election to CUF. A number of CCM wards for the municipal council were also lost, chiefly to the CUF party.

Such imaginaries of modernity being taken away has occurred in previous resource booms (Ferguson, 1999), and Mtwara presents another such example, albeit through infrastructure development rather than commodity price crashes. In the past, the resource sub-nationalism of Mtwara had been one of positivity; the industrialisation of the region, the provision of jobs and improvement of livelihoods was seen to be unlocked because of the gas. Unlike the construction of roads and hotels, the level of industrialisation in the region occurred at a far slower pace. When asked about hopes, past and present, tied to the gas industry, one Mtwara farmer stated:

[59] IOC Engineer 1 Interview.
[60] Group Interview, Mtwara Poverty Reduction NGO (Group), Mtwara, 11.07.2018
[61] Interview, Mtwara Poverty Reduction NGO Employee 1, Mtwara Poverty Reduction NGO, Mtwara, 14.07.2018.

'Our hopes were high and got higher after the politicians came and talked to us. Mostly, our hopes were on factories which came along with the gas industry, for example: a potential fertilizer plant. From these, we hoped there will be several different employment opportunities created.'[62]

These responses centring around industrialisation were common, and comments surrounding employment, factories, electricity generation, and other supposed economic benefits were communal from respondents. In this respect, gas was to power, or provide raw materials, for industrialisation for Mtwara.

While the promises of rapid industrial development have failed to occur, there has been minor progress to industrialise the region. At the time of writing, there is only one major factory near the city – the Dangote cement factory. This stands in contrast to the petrochemical zone planned for the city, and the political promises made after the protests for more factories to be based in Mtwara. It fell far below expectations. When asked about expectations of the gas industry, respondents in a group interview in the village of Madimba claimed 'we cannot see what we were promised by our leaders',[63] and that:

'Mtwara is part of Tanzania and we want factories because we understand what kind of development they will bring to our society. But I see the current government does not give Mtwara greater attention and the gas industry keeps on deteriorating. They have been quiet on this matter of gas and its situation for a long time since they have been in power.'[64]

These imaginaries which were catalysed by political discourse have now been taken away by the same political party. While 'Mtwara will be like Dubai' is now routinely mocked, there are still hopes that industrialisation can occur, although the pace of such progression has been diminished.

With the Tanzanian gas industry seeing little progress in Mtwara, it appears that the initial optimism and imaginaries created by the gas would be difficult, if not impossible, to replicate if the industry returns. Currently, there is negativity or apathy towards the gas industry in Mtwara. One interviewee claimed that:

'There are no hopes for the industry. In short, we do not see any hope for now because it is hard to know what can happen to bring same energy and desire seen during the exploration period. Maybe if there are new discoveries, we can hope they will not take whatever they found there to Dar es Salaam, maybe then we might develop because of the gas industry.'[65]

[62] Interview, Mtwara Poverty Reduction NGO Employee 2, Mtwara Poverty Reduction NGO, Mtwara, 15.07.2018
[63] Madimba Group Interview.
[64] Ibid.
[65] Group Interview, Msimbati Villagers, Mtwara, 18.07.2018

'All the hopes for the industry are completely dead, there is no good faith in anything, our expectations turned into a disaster. Many of us in Mtwara expected that we would have a better economy like Dar es Salaam or other parts of Tanzania, but it turned out to be protests, riots, disappointment, fighting, lies and political commotion, especially during 2013. All of this was because of the gas.'[66]

Such feelings were common with respondents, some of whom wished gas was never discovered.[67] Here one can see how central the pipeline was in removing the resource imaginary of gas-led development and enshrined a resource sub-nationalism centred around grievances towards the core of the country. In this respect, the event of the riots and the collective memory around them have forever changed the social interaction with the gas industry: Rather than gas providing development, it represents the shift between the imagined future of an industrialised Mtwara and the reality that little immediate change to the region was going to occur. Fuelling this is the pipeline itself, which is physically removing the gas, and the assorted imaginaries of development with it, to the economic core of the country.

5.2 Resource Nationalism and Political Marginalisation

As previously mentioned, one of the largest causes of the Mtwara resource sub-nationalism had been the neglect of the southern regions in comparison to the more affluent north and Dar es Salaam. While the resource imaginaries of a more prosperous future may have subsided in the region, the regional inequalities have persisted, and attitudes towards the northern regions of the country, particularly Dar es Salaam, have become exacerbated as it has been perceived that the pipeline has taken the development to the city:

'Northern Tanzania benefits more than the south because big development projects always start on the northern side of Tanzania or from Dar es Salaam and then come to the southern side. Mtwara is also part of Tanzania and gas was supposed to bring us the same development. But they took it to Dar es Salaam, and currently there is a big new project of installing gas pipes for domestic use in houses. That project was supposed to start in Mtwara, not somewhere else.'[68]

For many interviewees, the government's discourse of nationalism and treating the whole nation equally rings hollow when it comes to development practises and natural resource management. This can be seen with electricity. In an attempt to placate local frustrations over the pipeline, efforts to increase electrification increased after the protests

[66] Mtwara City Group Interview.
[67] Madimbia Group Interview.
[68] Mtwara Poverty Reduction NGO Group Interview. This gas project is a pilot scheme to test the viability of installing pipes to provide cooking gas directly to homes. During my time in Mtwara, this pilot scheme was being tested and the information was well circulated in English and Swahili newspapers.

(Fernández, 2017). Nevertheless, the construction of the planned power plant has not yet come to fruition, and projected electricity generation of the new plant has gone down to 400MW, from a previous 600MW (Japan International Cooperation Agency, 2016: 18). Adding to this is the fact that the southern regions have yet to be connected to the national grid. In this respect, natural gas development from Mtwara has failed to arrive, and instead is generating electricity that the region itself cannot access.

For many interviewees, there was anger over the perceived preferential treatment of Dar es Salaam over other regions, with one respondent claiming that 'Dar es salaam is Tanzania'.[69] This anger towards the core was less to do with the gas itself but rather the imaginary that was created that the gas industry would catalyse industrialisation and development. When asked about such regional economic inequality, one cashew nut farmer claimed:

> 'Compared to Mtwara, Dar es salaam is getting more from the gas industry. This is one nation, why should one city get more than any other town? Dar es Salaam is already a big city. Mtwara is struggling to become a city as well. One of things which could attract development to turn Mtwara from a small town into a city is the presence of factories. The gas industry could have brought a lot of factories which are connected directly or indirectly to the gas industry. Gas discoveries were supposed to be our blessing and to bring development to us, not to another place.'[70]

Such a sentiment was common with respondents, who shared similar opinions regarding the gas industry. There is a concern within that the region will see very little or no benefit from the gas industry in Mtwara. In essence, Dar es Salaam is seen as the main benefactor of Mtwara gas, and the perceived benefits of the gas industry were going to the core of the country at the expense of the periphery.

While the majority of respondents believed that 'Dar es Salaam keeps on developing while Mtwara is going backwards',[71] this opinion was not uniform and included some disagreements between respondents in group interviews.[72] However, while some respondents did disagree that the core has got more development and revenues from Mtwara, it was still grounded in the same resource sub-nationalism:

> 'Dar es Salaam is not getting more out of Mtwaran Gas. Dar es Salaam is the centre of development, and there is a lot of industries there that have a high demand for Mtwaran gas. What we did not want is for the government to transport raw gas from Mtwara. We wanted the government to transport processed gas.

[69] Interview, Mtwara Resident, Mtwara, 10.07.2018
[70] Ibid.
[71] Cashew Farmer 1.
[72] Mtwara City Group Interview.

Mtwaran gas should be processed in Mtwara because by doing so, Mtwara would have got both the direct and indirect employment and benefit from the whole procedure.[73]

As one can see, while there was an understanding that gas can provide a greater benefit for beyond the southern regions, but instead wanted a greater contribution to the development of the country. In this respect, the resource sub-nationalism in Mtwara was one that was centred around adding value, both to provide greater development to the region first and then the wider country. In this respect, the government's resource nationalism has fractured unity rather than reinforcing it. By staying with the rhetoric that natural resources are for the whole nation to a traditionally neglected region, the government caused friction with a resource imaginary and a resource sub-nationalism that it also helped create.

Politically, the developmental promises for the gas in the region have been replaced by increased efforts in the cashew nut sector. Cashews are still one of the main agricultural sectors of the local economy, and Magufuli has ordered the army to buy cashews at higher prices offered in the private sector (BBC, 2018). This has been in part to aid the CCM electoral prospects in the region, which were severely hampered by the pipeline protests. This had ended poorly, with long processing times (The Citizen, 2018b), and delayed payments for farmers, putting many in financial stress (The Citizen, 2018c).

The result of the pipeline has been a decline in the imaginaries of gas as the catalyst for industrialisation, and apathy and even regret towards the industry. Despite this change in the imaginary of gas development, frustrations remain over the government's handling of the gas industry, which has fuelled resentment to more prosperous regions. Natural gas imaginaries altered perceptions of the future, and once the pipeline had been constructed this imagined future disappeared with it, disrupting plans to industrialise and develop.

6 Conclusion

This chapter explored the evolution of resource sub-nationalism in Mtwara and the frictions between the Mtwara population and the Tanzanian government over natural gas. The discovery of trillions of cubic feet of gas at the height of the commodities boom fuelled imaginaries of a prosperous future for both the whole country and the southern regions. In this respect, it was not the direct temporalities of extraction that dictated actions of these actors, but rather the conflicting imaginaries of the future that came with the promises of

[73] Ibid.

gas wealth. These imaginaries were fuelled by the materialities of gas as a developmental resource that could be utilised both for industrial development and electricity production. However, it was the political involvement and electoral promises during the 2010 general election that raised expectations.

The discourse for gas for national development allowed for two resource nationalisms to take place within the gas industry, one promoted by the government and the other which took the government's discourse and was mixed with a historical memory of political marginalisation and neglect: the resource nationalism constructed by the government was national in character and scope, and utilised, at least in public discourse, the gas for state-wide development, particularly focusing on electricity generation for the whole country. This was, and still is, coupled with a centralised bureaucratic structure around natural gas. Alongside this resource nationalism and sub-nationalism, were differing imaginaries of the future. While both imagined gas-based industrialisation and wider economic development, the differences were between the location of this development.

At its core, the Mtwara resource sub-nationalism contains many of the tenants of wider Tanzanian resource nationalism and narratives, but it was further entwined with historical and geographical grievances. Imaginaries around gas were that it would not just provide fiscal benefits, but also rapidly industrialise the region, and to right the perceived wrongs of political and economic marginalisation. These were propped up by promises and statements by politicians that 'Mtwara will be like Dubai!'. Because of this, the perceptions of the future rapidly changed, as well as the speed of which change takes place.

The materialities of the gas industry eventually undermined the imaginary of gas providing local development. Central to this was the infrastructure that is required for natural gas. The construction of the Mtwara-Dar es Salaam pipeline, and the resulting protests and riots saw a fundamental shift in the imaginary of gas. The materiality of the infrastructure was now not providing (imagined) development, but rather piping this 'developmental' resource directly to Dar es Salaam without any addition to its value. The result of this has been an imagined future taken away by the material reality of the gas sector.

This was further fuelled by the government's response to the protests, which suggested that the protestors were against wider Tanzanian development, and rather wanted to keep the resource for itself. The conflicting imaginaries between gas-led futures were as much developmental imaginaries as they were resource imaginaries. In this respect, the

government saw the control of natural gas as a control to one of the catalysts of economic development and acted on this perceived threat with violence.

Respondent's expectations for the future of the region have shifted accordingly; the expectations for rapid development have gone, and there is now little hope for industrialisation for the region. This has been exacerbated by core-periphery relations where the north and Dar es Salaam have been perceived as enjoying the benefits of the gas. In many respects, the imaginaries of the development of the region have reverted to a pre-gas situation where contemporary marginalisation continues to be the norm, and a revival of the gas sector offers little change to the future.

In conclusion, resource nationalisms, and in this respect, the resource sub-nationalism of Mtwara, are not static, but evolve through events and changes in the sector. Central to the evolution of the Mtwara resource sub-nationalism was the materialities of the gas sector. The government planned natural gas to be the catalyst for national industrialisation and electricity generation, while at the same time promising this to the local Mtwara population. This materiality of gas, one of a 'developmental resource', changed in Mtwara with the announcement and eventual construction of the Mtwara-Dar es Salaam pipeline, which removed the gas from the region with little value addition, and in doing so, removed the idea of an increased pace of development and an imagined future of gas-led industrialisation.

Chapter V: Extractive Frontiers: The Promises of 'Booms' and Going Bust in Mtwara

1 Introduction

The introduction of the offshore gas sector to the region of Mtwara caused considerable changes to both the local economy and the perception of the region from international and domestic actors. The modern onshore gas industry in Mtwara started on the 8th June 2006 with the drilling in Mnazi Bay by the IOC Artumas, later known as Wentworth Resources (TPDC, 2019a).[74] Yet the largest discoveries and investment has come from the offshore sector. It marked the first official foray into Mtwara as a gas frontier and introduced both boom and bust commodity cycles and project phase lifecycles into the region. It also introduced new forms of temporalities into the region; the introduction of the gas sector also introduced some of the temporalities that dominate the strategic decisions behind the sector such as commodity price cycles and the project lifecycle. For the region, the introduction of the sector also introduced the commodity cycle, in the form of anticipation and preparation for the supposed 'resource boom' that was to accompany the maturing of the sector.

Preparations and anticipations of resource booms have been a small but growing part of literature examining the social effects of natural resources. For example, Frynas *et al* (2017), explores how expectations of resource booms have their own impact on the political economy of states. They demonstrate in STP and Madagascar, how, despite a lack of sustained exploitation of natural resources, the expectations of a boom allowed for certain elements of the resource curse to be exhibited in both countries. This was chiefly through economic effects, such as volatile growth and increased government spending, and governance effects, such as increased rates of corruption among national politicians and reduced perceptions of governance. The impact of resource boom expectations on the potential for conflict was weaker. While Frynas *et al's* work explores the macroeconomic scale of anticipating resource booms, this chapter explores how anticipation for a 'resource boom' occurred at a local level, both within Mtwara city and villages surrounding the gas extraction sites.

[74] This alludes to on the ground presence of exploration conducted by IOCs Obviously, there had been bidding rounds and preliminary exploration done before this.

Economic booms, both real and anticipated (often) come with a bust. Mtwara is no different. Here, the current literature on how resource busts affect the local have not garnered the same attention when compared to case studies anticipating resource booms. Some exceptions include Walsh's (2012) research into post-boom towns in sapphire mining in Madagascar, which highlighted both the positives and negatives of those living in this post boom period. However, there are many differences between this case study and the Mtwara case study; the sapphire boom in Madagascar was predominately artisanal led, which tends to have a wider impact on the local economy (Hilson, 2009). Secondly, the post-boom towns in Madagascar experienced considerable exploitation and saw the most available deposits exhausted. Mtwara has not. Rather, the boom was in construction and supply services in anticipation of the gas sector. In this respect, Mtwara awaited a resource boom that never truly materialised.

As Tsing (2003) states, capitalist frontiers are projects in making geographical and temporal experiences. In essence, they reshape both space and temporality. In the case of Mtwara, the boom-and-bust cycle did not just place it on the global energy map, but also altered its local economy and society. The boom-and-bust temporalities of the gas industry before the offshore sector was established presents an interesting case study: high commodity prices promised Mtwara to be reshaped an energy frontier, but declining prices in turn hollowed out this frontier status for extractive capital. This was not just for IOCs, but as will be shown, also a frontier for domestic investment for supply services to the sector.

The bust of commodity prices occurred before the offshore industries transition into the production phase, and this has seen the industry enter a purgatory of sorts; the location of major gas deposits is known, the reserves are estimated to account for 57tcf, yet the price of gas and national politics have seen little to no IOC activity in Mtwara since 2015. With the offshore export sector (and its linkages) no longer an exciting investment opportunity, the Mtwara gas industry has been reshaped to be a quasi-frontier. It is known on the energy and domestic capital as having 'potential', but at the same time due to political considerations and low gas prices, it is simultaneously ignored as a location for further investment. At the same time, the temporalities of boom and bust have concurrently made the region more vulnerable to international extractive temporalities than ever before, but with little financial or material gain at the local level to show for it.

The end of the gas boom was not a singular event, but rather was dependent on the actors involved in the industry. For many residents in Mtwara, the end of the boom was the

construction of the Mtwara-Dar es Salaam pipeline, as it became a signal for a shifting of investment away from Mtwara and towards Dar es Salaam. For some scholars researching Tanzanian extractives, it was the passing of the 2015 resource laws (Jacob and Pedersen, 2018). For interviewed IOC personnel, they suggested the reason for the slowdown in operations was due to two factors: firstly, it was the governments hostility to extractive corporations, second was the fall in commodity prices at the end of the 'commodities super-cycle'. This chapter will focus on the local fallout of the latter.

This chapter explores how two of the mainstays of extractive temporalities, the commodities cycle and project phase lifecycle, created anticipation for a resource boom that never truly occurred. Its arguments are twofold: firstly, it argues that the perception of continued high commodity prices left the population and domestic investors to anticipate a 'resource boom'. This anticipation both shifted expectations and actions of actors accordingly. Secondly, it argues that the commodity cycle reshaped Mtwara as a frontier, not just for international energy firms, but also for domestic capital that sought to invest in the region for the anticipated 'boom'. In doing so, an economic boom did occur in Mtwara, but was driven more by domestic capital that sought to invest in hospitality and real estate services to supply the hydrocarbon sector. When the offshore sector hit a pause between progressing from exploration to development and construction, and gas prices in the Asian market dropped, the construction and real estate bubble that had built in anticipation of a boom had turned into a bust.

This chapter is structured chronologically; it first explores the economic boom that accompanied the gas industry in Mtwara. It argues that the boom introduced economic temporalities in the form of project lifecycle phases and the boom-and-bust cycle. During this time, the region was in the middle of both the positive aspects of extractive temporalities; the high commodity prices led to a preparation of a resource-led boom and was accompanied by the early stages of the project phase lifecycle that requires the most direct and indirect employment of unskilled and semi-skilled workers. It then focuses on the bust, which focuses on the sectors and livelihoods of actors that changed their behaviours in anticipation for the gas sector, and how they have changed due to the fact that the anticipated boom did not arrive. Furthermore, it argues that while the gas industry remains embryonic, some of the more negative aspects of the investment boom remain, but little of the positive aspects have not.

2 The Promises of Booms on the Frontier

As mentioned in the introduction to this thesis, the discovery of commercial quantities of oil and natural gas across East Africa rapidly changed the oil and gas industries discourse of the region from a 'backwater' to a 'frontier'. In Mtwara, this resulted in increased investment into the region, not just by multinational oil companies,[75] but also investment from domestic private and public capital. This increased attention and influx of capital had profound implications on the development and economic performance of the region. Chief among these was the amount of capital invested in the region. This was in part due to the low amount (both in terms of quality and quantity) of infrastructure available in the region. The deep seaport in the city also saw increased traffic from IOCs during deep sea exploration, [76] and was accompanied by investment by BG to improve the port in the early stages of the offshore sector (BG, 2013), and a $700,000 investment into the port in 2015 (The Citizen, 2015a).

While the gas industry was the catalyst for this boom, investment came not just from IOCs, but also domestic sources. The majority of the investment that affected the lives of those in the immediate area came from national investment both from the government and by domestic investors in land and construction. In essence, Mtwara became the frontier not just for international capital, but also a domestic frontier for Tanzania. This increased investment brought not just money, but new people and ideas to the region. However, this increased domestic investment rested entirely on high commodity prices to continue exploration and potential exploitation of natural gas.

2.1 The Commodity Super Cycle and Mtwara

The commodities super cycle was one of the main reasons for IOC exploration for hydrocarbons in East Africa in the first place, with increased and sustained demand from developing economies, particularly China (Erten and Ocampo, 2013). This was accompanied by bullish market analysists, who suggested that the idea of a commodity bust occurring soon will be exaggerated (Heap, 2005; Canuto, 2014), and suggestions that this cycle could last up

[75] This did not just include the international oil companies that directly extract gas, but also hydrocarbon supply services such as Haliburton and Schlumberger, both of which operated in Mtwara. While these companies do not have a direct stake in the oil and gas fields themselves, they are contractors that supply technical services to IOCs. At the time of research, Haliburton had left Tanzania. Schlumberger still technically had a base of operations in Mtwara, although they underwent a 'silent refusal' for my requests to interview personnel.

[76] Interview, Dockworker 1, Mtwara Port, Dar es Salaam, 18.02.2018; Interview, Dockworker 2, Mtwara Port, Dar es Salaam, 20.07.2018

to 35 years (Cuddington and Jerrett, 2008). Increased commodity prices allowed for MNCs to explore for mining deposits in regions seen as previously unsuitable, either due to geological, political, or economic constraints. This also coincided with technological advancement in the form of deep-sea drilling of oil and gas, which opened up areas up greater than 5000 feet in depth in 'ultra-deep sea' areas. Tanzania was a benefactor to both of technological advancement and high commodity prices.

Unlike the oil industry, which is a truly global market, the gas industry remains an 'industry that stubbornly resists globalisation' (Mason, 2015: 327). The desired market for Tanzanian gas was (and still is) the Japanese market.[77] During these years, the price of gas in the Japanese market, rose from roughly $3 per MMBTU[78] in 2000, to a height of $16 MMBTU in 2008. This price fluctuated in between $11 to $16 until late 2014 (Figure 10). Without the high prices of gas in the Japanese market, such exploration for deep sea gas would have been economically unviable. Because of this, Mtwara was opened up to new markets; while the region had traditionally supplied raw cashew nuts to the Indian market (see below), the gas industry allowed the region to be exposed to the Japanese gas market, a market that includes many East Asian economies, and is also historically tied to crude oil prices (CME Group, 2018).

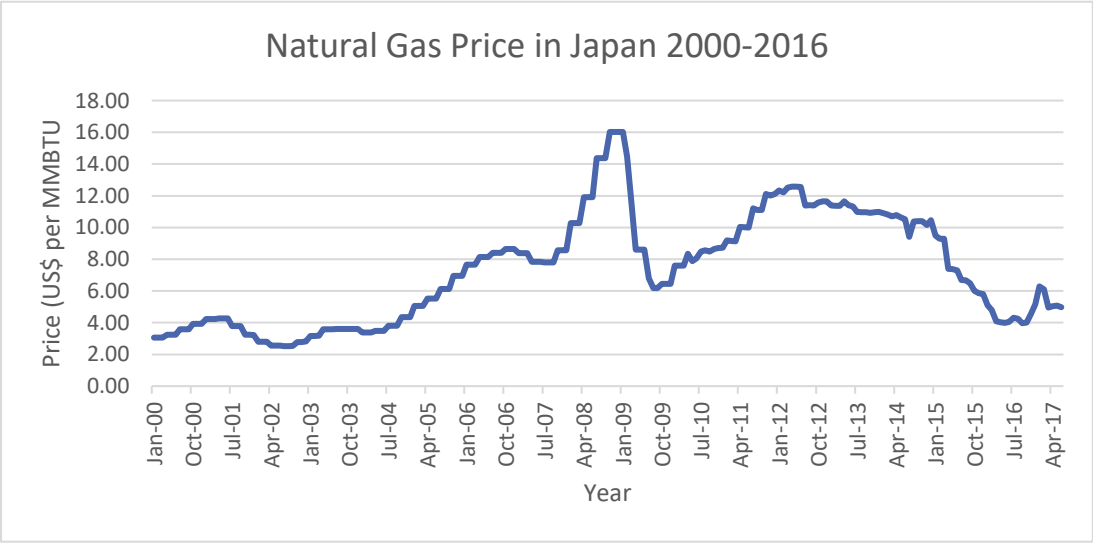

Figure 10: Natural Gas Price in Japan 2000-2016 (data collected from IMF, 2019b).

[77] Until 2018, Japan was the world's largest importer of natural gas (Reuters, 2018b). Imports have fallen due to the restarting of nuclear power plants after their shutdown during the Fukushima disaster in 2011. It has now been overtaken by China, with India the third largest importer of LNG (IEA, 2019b). This suggests that if Japanese demand continues to fall, Tanzanian gas is still in a strong geographic position to supply three of the world's largest importers of LNG.

[78] One million BTU is approximately equal to a thousand cubic feet of natural gas (EIA, 2018). Unlike oil, which universally tends to be measured and sold in terms of barrels, gas can be measured in British Thermal Units (BTU), 1,000 cubic feet (Mcf), or 1,000 cubic metres. MMBTU was chosen for this thesis due to the use of the unit in IMF gas price data.

Furthermore, it allowed for an industry that, as long as the market conditions are right, can generate revenues throughout the year.

2.2 The Introduction of Gas Investment into Mtwara

In the period between 2006 to 2014, Mtwara found itself in two of the most labour- and capital-intensive phases of the extractive industry. Firstly, commodity prices, including gas, were at their height. Alongside this are the lifecycles of gas wells, which were in the exploration and developmental phase for the offshore and onshore sector, respectively. These phases require both capital investment for equipment and construction of facilities. The use and purchase of equipment for the exploration phase offers little wider economic benefit for the region, as offshore equipment is highly technical and imported. Rather, the wider benefits from these phases come from the construction of facilities and employment (Darko, 2014). This is particularly true for the development phase in the onshore sector, which includes construction, to generate direct and indirect jobs and investment through construction activities and supply sector jobs, albeit temporarily.

Due to the technical skills involved in offshore exploration and development, most of the direct local employment from the wells came from the onshore industry. For the onshore gas industry in Mnazi Bay, there had been opportunities to participate in the construction of gas wells, production facilities and the Mtwara-Dar es Salaam pipeline. These employment opportunities were temporary in nature; one Tanzania well manager interviewed told me that roughly 200 casual labourers were employed during the seismic stage and 100 during exploration, and this did not include semi-skilled labourers that would have worked on site like drivers, plasterers and electricians.[79] By the senior manager's admission, this change in labour practises was not communicated effectively to those living nearest to the extractive site.[80] Interviews of former labourers in Msimbati claimed that they were paid 12,000 Tanzanian shillings per day.[81] Because of this, many villagers living closest to the site expressed frustration at the opportunity, and removal of employment, which is explored in greater depth below.

Geographers and anthropologists have focused on the poor economic returns and increase in social hardship the introduction of extractives industry have in areas near the extractive site (e.g., Fentiman, 1996; O'Rourke and Connolly, 2003; Bush, 2008). However, these concerns were not noted in interviews. Instead, respondents in both the villages and

[79] Interview, Well Manager, Mtwara, 17.07.2018.
[80] Ibid.
[81] Msimbati Group Interview. This is roughly $5.

in the city of Mtwara were positive about the initial introduction of the gas industry into Mtwara, particularly around the growth of the local economy. On the one hand, this is logical; considerable promises of development were made to local villagers, both in the form of infrastructure development and job opportunities.

Initial positivity over the sector is backed up with economic growth of the region: Official statistics recorded 40% annual GDP growth of the region between 2009 and 2010, the first year of gas exploration by Ophir and BG (National Bureau of Statistics, 2015).[82] While this jump is extremely high and there could be discrepancies within the economic calculations, GDP growth in the region does appear to have grown significantly. Official statistics report that GDP growth grew at an average of 13.70% per year between 2012 and 2018, although this is consistent with the national average GDP growth of 12.98% (National Bureau of Statistics, 2019).[83]

One of the ways the anticipated boom altered the local economy in Mtwara was through a change in the perception of the cashew sector. As mentioned in the previous chapter, Mtwara before the discovery of deep-sea gas was an economy chiefly based on the cultivation and export of raw cashew nuts, primarily to the Indian market. In this respect, the business cycle of the region was one dominated by the cashew nut industry, and therefore economic and social temporalities were often cyclical in nature; the region's harvest season is from October to February and occurs at a time where prices are at a peak due to the fact that it stands in contrast with other national cashew nut harvests (Figure 11).

For the city of Mtwara, the cashew harvest season meant an increase in income and trade during from October through to February. However, preparations begin before the initial harvest in October. This influenced my own experience in Mtwara in the form of housing; when arriving in early July 2018, multiple hoteliers and middlemen often commented that I arrived at the right time, for if I arrived a month later when preparations for the cashew nut harvest were occurring, I would have struggled to find housing, or would have to pay prices two or three times higher than I paid. A quick search online for prices

[82] Authors own calculation based on data from *National Accounts of Tanzania Mainland 2007-2014* (National Bureau of Statistics, 2015). The recording of GDP in African contexts is difficult and may have to be taken with a pinch of salt. Furthermore, this is from official statistics, which may also be influenced by politics, as Tanzania has had recently been criticised for unreliable statistics by the IMF (Financial Times, 2019c).

[83] Author's own calculation based on data from *National Accounts of Tanzania Mainland 2007-2014* (National Bureau of Statistics, 2019). Note that the national average excludes Zanzibar.

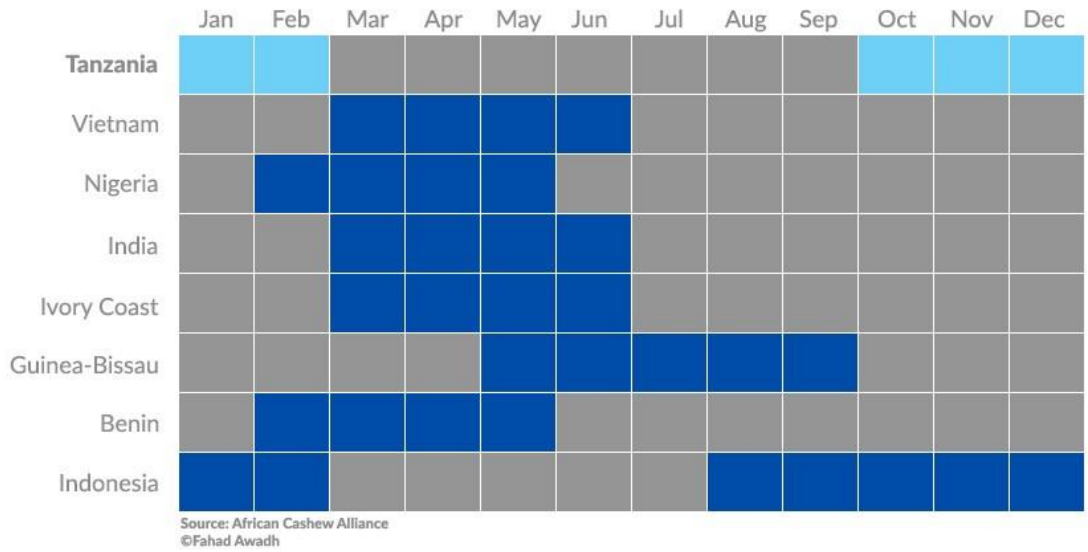

Figure 11: Cashew Nuts Favourable Harvest Period (Awadh, 2018).

suggested they were right.[84] While there is some harvest of cashews around the city of Mtwara, most of the harvest occurs inland in the regions of Lindi, Ruvuma and Mtwara. Rather, it is the port of Mtwara that is central to the cashew sector in that it is used to export cashews. Alongside this, the city of Mtwara is used by traders, usually from India, as a warehouse location to store cashews and as a location to purchase cashews.

Anticipation and predictions of the future alter the behaviour of actors in the present. This can be seen with the altering of economic planning due to the anticipation of resource booms, which is historically common (Drelichman and Voth, 2009; Frynas *et al*, 2017).[85] This also occurred in Mtwara, both in terms of economic planning at the administrative level and became apparent that such a mindset occurred in residents interviewed. Imaginaries of gas led industrialisation changed both the perception of the future and cashew harvest in the immediate area around the city of Mtwara and villages near the extraction site. It is worth noting that recent macroeconomic literature has suggested that extractive resource windfalls affects agricultural productivity within Africa (Dorinet *et al*, 2020). While this is not a substantive account of the local Mtwara cashew sector, comments from respondents suggest that the cashew sector was indirectly impacted from the introduction and expansion of the gas sector.

The gas sector changed the imagined economic future of the city and the region. This both came in the form of actions on the ground and changes in policies to maximise potential

[84] Fieldwork Diary, Mtwara, 02.07.2018.
[85] An in-depth discussion of industrial plans around natural gas can be found in the next chapter.

revenues from gas extraction. A new master plan for the region was implemented (Mtwara Regional Administration, 2017: 2-3), in which altered the previous *Mtwara-Mikindani Master Plan (2008-2028)* to better accommodate economic and demographic changes caused by the gas sector and to attract 'support of the oil and gas industries and ensure that pragmatic, organised and guided physical development of Mtwara area is achieved' (Mtwara Regional Administration, 2017). It is worth noting that there is little discussion of agriculture within this updated master plan, and no mention of major cash crops, such as cashews. The government changes in discourse and encouragement to enter the sector inadvertently discouraged attention to the cashew sector, which was increasingly been seen as a sector for the elderly (The Guardian (Tanzania), 2016). As one city respondent, a young man who had emigrated to Mtwara city from the rural area of Mtwara told me:

> 'Before gas, cashew nuts were the business of Mtwara. After the gas came cashew nuts became less of a concern compared to gas and one of the promises was that gas will be the alternative economy [instead of cashews]. The economic priority was to be given on factory and industrial development, employment, and investment in Mtwara and all of these were to be boosted by gas industry.'[86]

Alongside changes in administrative planning was a change in local perceptions of sources of economic growth. One respondent in a group interview claimed that the gas industry made people in Mtwara 'ignore' cashews.[87] The gas sector encouraged rural to urban migration, which is covered in greater detail below, and cashew farmers noted a reduction in the potential workforce (The Guardian (Tanzania), 2016). In this respect, the gas industry directly influenced and changed local working patterns and aspirations, which in turn indirectly affected the cashew nut industry. In political discourse, this perception of economic change was exacerbated by political slogans and promises that 'Mtwara will be like Dubai!'. This change in focus was noted by local NGO workers that focused on poverty reduction in Mtwara:

> 'The gas industry affected the cashew agricultural cycle…When gas exploration activities started, the cashew nut industry was out of many Mtwaran's minds. People started to focus more on gas sector and investing in indirect opportunities which come alongside with gas. Because of several reasons such as politicians exaggerating on the benefits of gas, people believed that cashew nuts were not paying enough and so on they decided to shift towards gas with the high expectation of getting more benefit than in cashew nut sector.'[88]

The direct and indirect supply side of the gas industry presented an opportunity to allow for a greater and more sustained income than what was considered possible with small-

[86] Mtwara City Group Interview.
[87] Mtwara Poverty Reduction NGO Group Interview.
[88] Ibid.

scale cash crop agriculture. While this was started with the introduction of the gas industry, this movement was catalysed by political promises and statements that were outlandish that spoke directly to the populace. The introduction of greater investment was coupled with government initiatives to promote the industry and included local content initiatives. Local content initiatives, although poorly implemented in the beginning,[89] did hire some local population; people that had worked in the sector, either through construction or other roles such as drivers, noted that they obtained their respective roles through local employment initiatives.[90] It is worth noting that those in Mtwara who were interviewed are no longer employed in the sector.

The positive economic effects of the commodities boom and the exploration phase, combined with the election period of 2010, meant that the government neglected the possible negatives of capital temporalities, such as a drop in gas price or the change from the construction phase to the production phase, which in turn would decrease employment opportunities. There was little explanation of the temporary nature of the jobs provided during the construction phase.[91] Investment into the supply side of the sector both allowed for the rapid change of the local economy and made it more vulnerable to global variables in the process.

The promises of a resource boom in the near future allowed a new business cycle to emerge in the city of Mtwara; it had changed from one that operated seasonally with the cashew nut industry, to one that revolved around the gas industry that operated throughout the year within a rapid pace of time. In this respect, two of the main temporalities of extractive capital – the commodities cycle and the extractive well lifecycle, catalysed domestic investment as well as investment from IOCs. While this industry is capital, rather than labour intensive, it did not stop people from being employed either directly or indirectly in the industry. This changed the business cycle of one that would see business plans and financial strategies around the gas industry, which, at the time provided a more sustained income than the seasonal business and labour cycle of cash crops. In many respects, it demonstrates the power of the temporalities of extractive capital whereby the agricultural business cycle was quickly surpassed by outside capital, leading to a region's economy quickly becoming dependant on an anticipated boom that would occur in the near future, rather

[89] Local Content Director, Mtwara, 13.07.2018.
[90] Interview, Former IOC Construction Worker, Mtwara, 10.07.2018; Interview, Former IOC Driver, Mtwara, 12.07.2018.
[91] Well Manager Interview.

than the cashew nut economy which was largely dependent on natural phenomena like weather cycles, which in turn timed the cashew market cycle in India. However, the region lacked planning in preparing for the sudden reversal of demand that comes with change of project phases, a downturn in gas prices, or the lack of advancement of PSA negotiations between the government of Tanzania and IOCs.

2.3 Mtwara as a National Frontier: Economic and Social Factors

As mentioned before in the previous chapter, Mtwara has often been neglected by both colonial and postcolonial governments, in part due to the lack of infrastructure connecting the region to the economic core of the country as well as continued failed colonial and post-colonial experiments in development. The discovery of commercial deposits of gas changed the perception that the region was 'looked down upon by the rest of the country',[92] and rather the region was now seen as having economic 'potential'.[93] This was not just within the economic sense, but also within social interactions. Mtwara as a frontier was not just for international capital and multinational corporations, but also for Tanzanians outside of the region. The introduction of the gas industry allowed both for greater investment, but also social interactions with other Tanzanians, and ensured that Mtwara was not just a frontier for international capital, but also the frontier of Tanzanian investment.

In this respect, the gas boom in Mtwara allowed for a more positive image of the region than had traditionally existed within the country. Rather than traditional views of the region, it had changed to a potential investment destination. This was mainly focused on the real estate and construction sectors,[94] causing an investment boom, but also involved increased government attention and expenditure, particularly within the construction of roads and increased electricity generation. The real estate boom was the most visual change of Mtwara's status. The cost of land rose exponentially within the boom period, and people were selling their plots of land for a 'huge' amount.[95] This was heavily promoted by CCM politicians and opposition alike, with opposition MP Zitto Kabawe claiming that:

> 'Lindi and Mtwara regions had for long been lagging behind in development, but with the recent discovery of huge new gas field, the story will soon be rather than later be quite different…PPF [Tanzania's public pension fund] must move quickly and scout for land and start planning on different pension projects' (Tanzania Daily News, 2012).

[92] Mtwara Chamber of Commerce Interview.
[93] Senior Mtwara Local Government Officer Interview.
[94] Interview, Mtwara Economic Planner, Mtwara Municipality, Mtwara, 09.07.2018.
[95] Member of Parliament, CUF. The interviewee claimed that plots of land were selling for up to 300 million shillings (roughly $130,000). However, this cannot be verified.

I could not find out what investments had been done by PPF, however, land was brought by the Bank of Tanzania for a new office and housing in the city.[96] VETA also had a new regional headquarters constructed. As shown in the next chapter, large scale industrial projects were also promised. There were other factors that were influenced by increased by the gas industry, such as increased reliability of electricity generation, and many residents hoped that this would encourage further investment in the region.[97]

Many of the private investments by Tanzanians were in services required for the gas industry that did not exist in the area before the discovery of commercial gas. Before the gas discoveries, there were no internationally certified hotels, and many executives flew out from Dar es Salaam to Mtwara by helicopter rather than staying in the area (Tanzania Daily News, 2012).[98] The result of this investment was that Mtwara was seen as more of a 'business town'.[99] Many interviewees from Mtwara, both businesspeople and villagers alike, noted that the increase in population resulted in greater cash circulation. The increased level of business involvement in the town could be summed up by the statements of two businesspeople:

> 'Before 2010, there were little businesses in Mtwara, after the coming of the gas industry, the number of businesses expanded. There are now 500 odd business members [in the Mtwara chamber of commerce]. Before that, there were very little members, about 250. Most of these businesses came from people outside to invest in Mtwara...Historically, it [Mtwara] was an economic backwater. When the projects came, he building industry expanded my new homes and hotels were built. These were mostly lodges and guesthouses. Before the introduction of the gas projects, there were only three banks, now there are now eleven.'[100]

> 'The gas industry had brought a lot of people from Dar es Salaam, as well as other regions. They tended to invest in guesthouses etc. Lots of people got encouragement to build or renovate houses, and the government encouraged investment, particularly in housing, guesthouses and rentals for both property and vehicles. People came here and built things out of their own pocket.'[101]

Here one can see the transition from backwater to frontier of international and domestic capital; there are now more SMEs operating within the region than before the discovery of gas. Alongside this, the increase in the number of banks operating in Mtwara has (in theory at least) allowed for an ease of access to capital in the form of obtaining of

[96] Fieldwork Diary, Mtwara, 02.07.2018.
[97] Many interviewees appeared to equate modern infrastructure with the key to outside investment, this was particularly evident when discussion electricity generation, which was seen as the main roadblock to factory construction.
[98] This was also confirmed to me with many discussions of the state of Mtwara with IOC and NOC personnel in Dar es Salaam.
[99] Interview, Businessperson 1, Shopkeeper, Mtwara, 24.07.2018.
[100] Mtwara Chamber of Commerce Interview.
[101] Interview, Senior Manager, NAF Beach Hotel, Mtwara, 02.07.2018.

loans for residents in Mtwara. The catalyst for this investment boom was international and temporal; commodity prices and an anticipation of a 'resource boom' in the near future encouraged domestic investment.

Alongside this investment was an increase in migration towards the region. Migration to the city from surrounding rural areas, which had begun before the discovery of gas, increased after the announcement of gas discoveries (World Bank, 2014a). Migrants were primarily from other areas of Tanzania.[102] Whilst no regional population data before or after the discovery of the gas has been found, the increase in the population since the discovery of gas was said to me from a multitude of interviewees of different social classes and from those that live in Mtwara city and the surrounding villages near the gas wells. The increase in population has caused long-lasting changes for the city and the surrounding area. Business elites, as well as market vendors in the main market of Mtwara, generally found this increase in migration to be a positive, with many stating that the influx of people brought changes in business practises in the area:

> After the gas industry was established, people came from all over the country to the region. This has changed the way to do business. Many business practices from Chagas[103] were adopted such as opening a store in the early morning, which caused the locals to do the same…The gas industry has brought a lot of changes [to business practises]. [104]

> They [market members] have learnt many things. First, they learnt from organizations, but they also have learnt many from the people who came to Mtwara because of the gas. Personally, I believe that my members have learnt most from the new businesspeople who came in Mtwara, who had a similar determination of gaining a profit from the gas industry. Before gas exploration activities, Mtwaran's used the same traditional ways of business every day of, which, in hindsight, were not good enough, but the influx made Mtwaran's change the way of doing business and became more competent.[105]

The increase in population therefore, for the interviewees, brought in new business practises that were seen to be as positive. The image of the frontier is one of space open to

[102] While Mtwara is just roughly 40km away from the Mozambique border, interviewees said that migrants coming to Mtwara were often Tanzanian nationals or foreigners associated with the gas sector, rather than people from bordering states. This may be due to the issues of language or the lack of infrastructure at the border, with a bridge connecting the Mtwara region and Northern Mozambique only completed in 2010, however, there is no paved road on the Mozambiquan side of the bridge (Global Construction Review, 2018). Furthermore, northern Mozambique also has undergone its own resource driven economic boom, fuelled both by natural gas and coal (Wiegink, 2018).

[103] Chagas are an ethic group from the north of Tanzania. They have a reputation in the country of being effective businesspeople.

[104] Mtwara Chamber of Commerce Interview.

[105] Interview, Mtwara Market Association, Mtwara, 13.07.2018.

capital expansion, and in the respect to Mtwara, the region was not just opening in the traditional way scholars have seen frontier (i.e., the expansion of capital to exploit 'untouched' land and natural resources for global markets), but also domestic capital, which has seen a change in business practises and a greater incorporation of the region into the domestic economy. However, migrants were blamed for a rise in crime and for increasing the rate of HIV/AIDs in the region, although rates differ between studies exploring the infection rate in the region, suggesting that this is difficult to quantify whether this is true.[106]

In this respect, Mtwara was as much of a frontier for domestic as well as international capital. It was a 'traditional' frontier in the sense that the introduction of IOCs would extract 'untouched' natural resources and utilised and exploited by international capital. Whilst the majority (in terms of sums invested) was from international capital, the biggest effect for the city of Mtwara was the introduction of domestic capital, which resulted in an increase in the population, the circulation of money and the number of businesses operating. Whilst the domestic investment had more of a visual impact with the number of businesses competing in the region, the fact was that this was a boom that started because of international extractive temporalities. Because of this, the boom in Mtwara and resulting domestic investment was vulnerable to price shocks and changes in the gas well lifecycles. With an economy in Mtwara that was both embryonic in nature and heavily reliant on the gas industry for both investment and change in perception, the 'bust' part of the commodity cycle would hit the city hard, as the next section will show.

3 Going Bust

The collapse in gas prices from 2014 onwards, combined with the tensions in negotiations between the government and IOCs has led to a pause in the advancement of the Tanzanian offshore sector. Alongside this pause in the offshore sector, was the transition from the development phase to the production phase for onshore sector, and the end of the construction of the contested Mtwara-Dar es Salaam pipeline. Compounding this further is the fact that no new onshore wells are being planned in Mnazi bay. These events were put forward to me by a variety of respondents for the reason for the slowdown in Mtwara. The one thing that was clear was that the anticipated 'resource boom' had failed to materialise,

[106] Bringing disease and crime is a common complaint against migrants globally. Furthermore, resource boom towns with migrant populations are considered high risk locations for HIV transmission in Tanzania and in Africa more generally (Desmond *et al,* 2005).

and instead, those that had invested into the region to benefit from the boom were now entering a business environment that was closer to an economic 'bust'.

Much like with the growth of the gas industry in Mtwara, the stagnation of the deep sea industry coincided with a contraction of gas prices, whereby Japanese gas market, alongside the German market, started to sharply decline in 2015 (IMF, 2019).[107] The Tanzanian deep sea would have been considered one such market that would have turned economically unviable, at least in the short term, due to the high costs associated with the deep-sea exploration and production.[108] The last exploration for gas in the deep-sea sector occurred in 2018 by Equinor (The Citizen, 2018e), although this appeared to have been done with the insistence by PURA, arguing that Equinor had to do it to fulfil its contractual obligations, rather than a meaningful attempt to find more hydrocarbon deposits.[109] The last exploration by the other IOCs, Shell, Ophir and Pavilion Energy, in the region occurred in late 2016 (Ophir Energy, 2016).

This coincided with the exploration phase of the extractive lifecycle was also coming to an end, and the beginning of the development phase, which in theory would allow for a brief increase in employment with the construction of associated infrastructure and supply side industries. However, given the nature of the offshore sector, it is questionable whether there will be much employment on the construction of the rigs due to the special skills required. Instead, the lack of advancement of the Mtwara gas industry has resulted in a situation whereby Mtwara was an economic frontier in name only; the temporalities that had allowed for Mtwara to be reconfigured as an energy frontier had gone, and the fall in prices ensured that continued exploration was economically unviable. With the most labour dependent part of the lifecycle finished, combined with the fall in gas prices, the economy of the southern regions found itself in a period of economic contraction and stagnation, not just in terms of the economy, but in terms of the hydrocarbon industry itself.

[107] The gas industry is more regionalised in terms of market prices than the oil industry due in part to the cost of natural gas export infrastructure, either in the form of transnational pipelines or LNG plants. Prices are measured by three major natural gas consumers that are geographically distant from each other: Germany, Japan, and the United States. The US gas prices for this time period were low due to the shale gas revolution occurring in the country, and thus were independent from the rising prices experienced in Germany and Japan from 2010-2014. Tanzanian gas is intended for the Japanese market, and thus is central to IOC concerns. It is worth noting that the natural gas industry is currently moving towards a more global gas price in the same vein as the oil industry (for more information, see Bridge and Bradshaw (2017).

[108] The breakeven cost of LNG is covered in the next chapter.

[109] Retired Senior TPDC Executive.

While the offshore industry has entered a purgatory of being in between the exploration and construction phases of the lifecycle, not all of the Tanzanian gas industry has stagnated in transition from exploration to development. The land-based industry, based in Mnazi Bay, started production in 2006. Unlike the deep-sea gas industry, which is planned to supply gas to the East Asian market, the land-based gas sites in Mnazi Bay supply the domestic market for power consumption, and thus the collapse in gas prices have had less of an impact. This is due to the fact that the sole customer of onshore Mtwara gas is the Tanzanian government (or specifically, TANESCO) for electricity purposes.[110]

3.1 Changes in the Local Economy

The resulting changes in the economic situation resulted in a change in business strategies in companies that had shaped their business model around supply services of the gas industry. The failure of an economic boom driven by the offshore gas sector has had a knock-on effect for the entire city and wider region. When asked by development in the region, interviewees from all social strata would often say that development in the region has gone back to 'normal', [111] or in essence, back to a pace of development experienced before the discovery of gas, or even regressed as there is 'nothing now'.[112] Much of the construction had stopped, and infrastructures previously created for the gas industry, such as warehouse storage, had proven to be 'white elephants'.[113]

Chief among those business sectors that suffered the most were the major benefactors of the boom period: the real estate and the hospitality industry. This was visible to those who visit Mtwara. While some of the evidence of the boom period was present with paved roads and newly built banks and offices completed with a modern glass aesthetic, there are also visible signs of the bust phase in the city, with the coastline of the city having numerous construction sites of half-built hotels and houses. Inside those hotels that were constructed, and operational, further evidence of previous boom times could be seen in the high-class hotels, all of which were quiet. As one would expect, the stagnation of the gas industry has had serious repercussions for business activity. When asked about the gas industry in Mtwara to senior members of staff in two of the upmarket hotels in Mtwara, they claimed:

[110] Group Interview, IOC Executives 2, Dar es Salaam, 28.03.2018.
[111] Mtwara Dockworker 1 Interview.
[112] Interview, Businessperson 2, Shopkeeper, Mtwara, 02.08.2018.
[113] Ibid.

'When constructing this [hotel], it was because of the feasibility study we had done. The hotel was needed for *mzungu's* and future businesses. Now the gas has gone we remain just another hotel. A minimum of business which was expected has not materialised. The feasibility study became a fiction. The expectations we had were not real. The hotel industry collapsed here, there are 25 unfinished hotels, with 16 unfinished hotels next to the beach alone. To make matters worse, land prices are decreasing.'[114]

'The aim of this hotel was for gas and oil workers. Most guests back then were foreigners, company guests, now it is locals. There is no business there now, so there is no need to cater for that kind of customer. Previously, it was 300,000 shillings for one night.[115] The lowest price now is 110,000.[116] 'Normal' people are becoming the customer. The oil and gas period included larger companies…Before you'd get no room if you didn't work in the gas sector. Back in the day we would get 200 to 300 million shillings a month.[117] Today, reaching 50 million shillings is a success.[118] Even restaurant sales have dropped as they used to supply food to the oil and gas companies.'[119]

The sudden reversal of the gas industry in Mtwara brought changes in business practises which has not resulted in the same amount of investment as before. Some of the businesses that were created to service the gas sector suddenly switched to the more seasonal cashew harvest for business.[120] However, this change in business strategy and has questioned the long-term viability of certain suppliers, particularly hotels. This has chiefly been for two reasons: firstly, alongside the change in industry has been a change in the clientele that dominate the industry. Gone are the technical and business personnel of the IOCs, instead, individual and community cashew traders are the new clientele. This has presented new challenges for some of the more luxurious hotels in the city:

'When you come to the cashew market, most buyers are Indians. They are very tight with money. One Indian will purchase lots of cashews and means there are less people here when compared to the gas industry. You cannot compare cashew season and the oil and gas industry. If the season is bad, buyers are directly getting less than they expected, and they look to cut costs. Before they reach here [Mtwara] they get local people to find houses for them, so they are not using hotels.'[121]

Combined with this change in clientele has been a shift from the all-year-round presence of the gas industry to the seasonal cashew sector. The shift from a business focus from all year to just a few months of the harvest has had severe repercussions for the economy of Mtwara as service sector employees have been made redundant since the

[114] Tiffany Diamond Hotel Interview.
[115] Roughly $130.
[116] Roughly $48.
[117] Between $87,000 to $130,000 a month.
[118] Roughly $22,000.
[119] Tiffany Diamond Hotel Interview.
[120] Tiffany Diamond Hotel Interview; NAF Beach Hotel Interview; Mtwara Chamber of Commerce Interview.
[121] Tiffany Diamond Hotel Interview.

stagnation of the gas industry. Alongside this, there is a reliance on weather patterns to ensure a successful harvest. This was summarised by one hotelier:

'The cashew nut industry is the backbone of Mtwara. On season and offseason, we have to wait to be in business for a very short amount of time. They are looking to get a cashew processing plant into the region. We will be able to break even.' 'Employees don't benefit with such a seasonal economy. We don't get reliable and full-time employment. As a hotel we only host big buyers.'[122]

As with the wider economy of Mtwara, this switch in clientele has also changed the business patterns of hotels in the region. The re-emergence of the cashew industry has not just affected hotels, but it has also affected the entire business cycle of the region down to individual's livelihoods.

For cashew farmers, they claimed that the 2012/13 riots were the reason for the poor cashew exports in the following years. This was explained as they argued that it gave the impression that the region was unsafe and put off foreigners arriving in the area to buy cashews.[123]. This affected personal incomes in the process. Furthermore, with the shrinking of the cashew industry during the economic boom, the cashew farmers present today have been struggling in the immediate post-boom economic landscape.[124] The impact of this should not be underestimated, as one cashew nut farmer told me:

'When gas was discovered, all of our focus, effort, investment and expectations were directed towards the gas industry. The cashew nut industry was forgotten. When the gas industry went down then there was nothing, we all went down with it.'[125]

It is worth noting that the 'our' mentioned in the quote above refers to the village of Msimbati, a village in close proximity to the gas processing plant and an important area for domestic gas production. As mentioned before, the city of Mtwara and surrounding areas business practises sought to shift from one of a seasonal agricultural economy to one that was buoyed by the hydrocarbon industry, and in the process shifted one from of economic insecurity to another. The resultant change to international extractive temporalities resulted in major shocks for the local economy, whereby strategies reliant on the oil and gas sector had to suddenly reverse to the smaller, seasonal economy of cashew nut harvest and export.

[122] NAF Beach Hotel.
[123] Interview, Cashew Farmer 2, Ruvura Village, Mtwara, 23.07.2018.
[124] Interview, Cashew Farmer 3, Ruvura Village, Mtwara, 23.07.2018. Since my time at Mtwara, this has appeared to change for the farmers, in the short term at least. Magufuli has ordered the army to buy cashew nuts from farmers at the government approved rates, after complaints that the prices offered by private traders were too low (BBC, 2018). Opposition members have accused Magufuli of playing politics due to the fact that Mtwara is a CUF held area.
[125] Interview, Cashew Farmer 4, Msimbati Village, Mtwara 10.07.2018.

Such a change altered labour patterns and revenue streams, whereby the gas industry offered continuous business compared to the cashew industry, which is seasonal in nature. Because of this reversal, there are only a few months of the year where the local economy sees an uplift in business and increased circulation of hard currency.

In this respect, the bust stage of the boom-and-bust cycle has complicated the concept of Mtwara as a frontier. On one hand, the region still has the potential for gas extraction, with quantities of deposits known and the technology required to extract it. However, this process is incredibly expensive, and the region is very much a geological frontier as much as an energy frontier. In other words, while the gas is there, it is too expensive to extract and export. The retreat away from the gas industry has meant that, at this current point in time, Mtwara remains a frontier in name only. It is not just the presence of natural resources and MNCs that make the frontier, but also the economic temporalities that accompany the sector determine whether a deposit is worth the investment for extraction.

3.2 Remnants of the Boom

With the economy hit hard by the sudden stagnation of the gas industry, the expected changes to local livelihoods did not materialise. In many respects, some of the more negative aspects for the poorest in society, such as increased land and food prices, have remained, but the more positive aspects like increased investment from IOCs, domestic investors, and the government, as well as increased formal (albeit often temporary) job opportunities, have gone, furthering the drop in economic development. In general, respondents claimed that the level of poverty in the area has gone up since the pause of the offshore gas industry, and issues like the rise of the cost of living and lack of employment opportunities were common amongst interviewees in both the city and the surrounding villages.

One of the groups of interviewees who are still feeling the negative effects of the boom are those closest to the villages. The construction of infrastructure to extract, transport and process natural gas has resulted in land being cleared from the immediate area. This, and the resulting infrastructures created have altered the immediate geography of the area through two factors: physical removal to make way for infrastructures, and pollution resulting from gas extraction. Land clearance, in the form of removal of shelter and cash-crops like coconuts and cashews, to free up space for infrastructure, were often a major complaint amongst villagers interviewed. Alongside this, wastewater from the gas field and increased temperature emitting from pipelines and extraction infrastructures were also blamed on the

gas industry.[126] During a group interview in the village of Ruvura, the village closest to the gas extraction site,[127] one respondent claimed that:

> 'They [IOCs] took farms and demolished houses, cutting down cashew nut trees, coconut trees, mango trees in the process and building gas plants. We were expecting the equivalent or more benefit than the cost our community incurred because of gas extraction, but all of a sudden, the gas industry faced a downfall which caused it to slowdown. All of our expectations, especially on benefits that we would get from gas, evaporated. There is now a slow implementation of development projects in Mtwara as well. In general, no one is interested in investing in Mtwara as they were during the gas exploration.'[128]

The compensation for the seizure of land and the destruction of cashew and coconut trees was another source of frustration for many village interviewees, with many feeling they were not compensated enough.[129] There were social pressures to take the compensation, one woman claimed that 'this [gas] development is for the benefit of the whole community and village. So you can either take the compensation money and if you resist we will take it by force.'[130] In a village further away from the industry, one villager in Madimba, claimed that problem was not compensation, but rather financial education as 'they spent all that money without a plan or investing it'.[131] It could be a case that living in Madimba, one of the villages interviewed furthest away from the infrastructure, there could be a case of village rivalry, or jealousy over the lack of compensation in Madimba. Nevertheless, many village interviewees expressed their frustration either for no or (for their point of view), a poor amount of compensation:

> 'I gave my land to be used for gas development projects. Many coconut and cashew nut trees were cut down in order to let the construction of a pipeline to take place. Those plants belonged to me and I was not well compensated…. I was promised reasonable benefit and good compensation. Up to today my life is still the same, and no benefit has occurred as promised. We expected better social services in terms of health and

[126] A microclimate of higher temperatures around the extraction sites were an incredibly common complaint from villagers. While gas infrastructure in the form of pipelines and flaring do have the capacity to increase temperatures around their proximity, there has been little research on whether this specific claim is true. It could be possible that another factor was involved that has led to the death of cashew trees. Furthermore, some claims around wastewater were rebutted by other members of the group interview after the interview was conducted, claiming it was an overuse of pesticides that resulted in the death of farmland. However, this does suggest that many of the agricultural problems facing the community are, correctly or incorrectly, blamed on the introduction of gas extraction.

[127] In one case the extraction point is directly on the road, with the new road circumventing it.

[128] Ruvura Group Interview.

[129] Madimba Group Interview.

[130] Ibid.

[131] Ibid.

education in return. We did not get what was promised and now we cannot get it since the government is focusing on implementing other big projects since the gas industry is no longer the big issue.'[132]

'Many people lost their farms, their houses were demolished and some of them were compensated less [than they thought] and some were not compensated at all. After the gas exploration activities begun and the international oil companies came and seek for investment in Mtwara, there was a high level of demand for land, which was mostly owned by the people of Mtwara. According to the national law, "you can own the piece of land, but if there are any natural resources beneath it such as gold, oil, or gas they belong to the government".[133] So most of time, the original owner of that land will be compensated by the government. In most cases, it under compensates.'[134]

In addition to the short-term fall in the gas industry, the construction of the gas site also meant the reduction of long-term sources of income; some fishermen complained that fishing was harder than before.[135] Cashew nut and mango trees which were cut down and needed to be replaced, can take two to three years to grow and mature, while coconut trees can take up to a decade, and this has allowed for a removal of both food and income. In many respects, the stagnation of the gas industry has resulted in communities closest to the extraction site being felt forgotten by both the private and private sector. The slowdown in the industry caused by international extractive temporalities has resulted in those living closest to the extractive site having their lives worsened with little benefit in return materialising.

In essence, with the slowdown of the industry, an unwritten social contract appears to have been broken; 'sacrifices',[136] such as removal of sources of income and shelter for the promise of an equal or improved life did not materialise. Instead, the economic vulnerabilities of a weak local economy exposed to international extractive temporalities allowed for a reduction in development. Here one can see the interaction between the global and microlocal; the commodities cycle had a big impact on the progress of development in the region, to the point where many interviewees have said things have regressed.[137] Furthermore, while the drop in prices was over a short period of time, the long-term negative impacts of the boom, such as the removal of cash crops, have taken a far longer time to recover.[138]

[132] Cashew Farmer 3 Interview.
[133] This is a reference to the Constitution of Tanzania.
[134] Ruvura Group Interview.
[135] Interview, Fisherman 1, Ruvura Village, Mtwara, 24.07.2018; Cashew Farmer 2 Interview.
[136] Interview, Fisherman 2, Ruvura Village, Mtwara, 24.07.2018.
[137] Ruvura Group Interview; Mtwara Poverty Reduction NGO Employee Interview 1.
[138] During a tour of Ruvura Village, one of my guides wanted to show me the locations of the dead cashew and coconut trees. Having seen them, they do appear to be in a cluster located near gas

With the stagnation of the industry, many respondents felt that economic growth and development had slowed down considerably. As mentioned before, this has had a considerable impact on business plans, but it also has impacted local communities' development strategies and chances of improving their livelihoods. As one Mtwara NGO worker told me:

> 'In everything that is, nothing can prepare you for being poor. All of our plans were designed for being more developed. We hope that gas brought change. Planning for poverty? Nobody plans for poverty.'[139]

The boom and exploration phase of the Mtwara gas industry distorted imaginaries of the future considerably and this has caused economic planning, such as the updated *Mtwara Master Plan* (2017), made during this time redundant. Plans were made with the expectations of high gas prices for a longer period of time, rather than the sudden fall they experienced in 2014. The exploration phase of the industry had left the region vulnerable and remove productivity from other sectors in the region. Despite the pause, a majority of Mtwara interviewees, in particular young adult men, stated a desire to work in the industry either directly or indirectly. This corresponds to a majority of interviewees stating a desire for the industry to 'return' to the region.[140]

4 Conclusion

This chapter has explored how the introduction of the hydrocarbon sector introduced the commodities cycle and project phase lifecycle to the region. The introduction of the sector transformed the region to that of a 'frontier'. Mtwara, which had typically been in the margins of the global economy, acting as a supplier of raw cashew nuts for the Indian market, suddenly changed into a 'energy frontier', opening up the region to an international industry with considerable capital for investment. The reterritorialization of Mtwara to a frontier was not just for international capital, but also for domestic capital that sought to capitalise on the predicted 'resource boom'. Scholarly focus on frontiers, suggests a reterritorialization of

infrastructure. Hence the complaints about dead cash crops years after the completion of the infrastructure is true, however, what is the exact determinant of the deaths, remains unknown to me.

[139] Interview, Mtwara Poverty Reduction NGO Employee 3, Mtwara NGO, Mtwara, 17.07.2018.

[140] While, at the time of writing, no IOCs had left the Tanzanian oil industry, although there are rumours that ExxonMobil is looking to sell its stake in Block 2 (Reuters, 2018a). There is no further activity in the region until the signing of the PSAs. No IOC had an office left in Mtwara, while there was only a Schlumberger warehouse near the port to suggest any presence of a potential hydrocarbon industry left in the city. It was different in the gas producing areas where extraction is currently taking place; extraction sites are visible and easily accessible, and there is a gas processing plant near the sites.

space to better accommodate capital (e.g., Tsing, 2003; Rasmussen and Lund, 2018). This also reconfigures the temporalities of the space in question.

As mentioned in the introduction, Frynas *et al* (2017) argues that anticipation of resource windfalls can provide effects of the resource curse. While this chapter does not engage with the resource curse debate, it does highlight that projected resource windfalls do influence the politics and economics of the state. As this chapter demonstrates, the same is true for the local economy and society. This is highly localised and dependent on the nature of the industry and the location. For Mtwara, the introduction of the gas sector brought with it new forms of temporality that are tied to both capital and labour. The commodity cycle, at its height during exploration, allowed for the reterritorialization of Mtwara to a frontier, but also brought with it an anticipated resource boom that would occur in the region in the near future. This predicted resource boom promoted investment into supply sectors, infrastructure, and construction, creating a construction boom, but not a resource boom. In this respect, Mtwara's status as an energy frontier encouraged international and domestic investment in anticipation of a future that will bring strong financial returns to the investment. In doing so, it replaced cashew nuts as the main economic focus for the local administration and investment, with local labour, particularly from young men, seeking employment in the supply sector of the gas industry.

Coinciding with the commodity cycle was the well lifecycle for both the onshore and offshore sector. The phases of these lifecycles were in the exploration and development phase, the latter of which is the most labour-intensive phase throughout the well's lifecycle. This provided a temporary boost to employment and money circulation. These cycles allowed for economic growth and development of the region. This indirectly also served to enhance the imagined future of Mtwara as a gas town, as employment was being provided. Poor communication about the temporary nature of the employment served to create an impression that more direct jobs in the sector would continue.

The projected 'resource boom' and imagined future of a prosperous Mtwara has proved to be a mirage. The failure of the prediction of the boom stopped the investment into construction and introduced the 'bust' phase to Mtwara. The fall in gas prices resulted in a considerable reduction in investment both by domestic and international actors. This was combined with a transition of phases both in the onshore and offshore sector; for the onshore sector, which is now in the production phase, the most labour-intensive phase is now over, and instead there is little unskilled employment available. In this respect, Mtwara

has been reterritorialized once again as a region that promises little return for investment. The effect this has had on the local is one where the effects of boom and bust are still felt but are no longer seen.

Remnants of the boom, such as half-built hotels, increased food prices and a more reliable electricity supply remain, but many of the jobs, both in terms of quality and quantity have gone. Furthermore, the environmental effects of the industry, such as pollution and destruction of cash crops, has added to the frustrations of the villagers that an unwritten social contract has been broken. For the offshore sector, its impact on Mtwara has been the removal of IOCs directly operating in the region. As a result of this, the main industry established during the boom phase, the hospitality industry, has suffered immensely, with many high-end potential hotels half-built and those that have been opened changing business strategies towards the cashew nut industry, a seasonal industry with a different clientele and far less money. The result of this has been that Mtwara has reverted to a 'normal' pace of development, once again reliant on the cashew nut sector. While gas no longer dominates the local economy, many of the negative aspects have remained.

Chapter VI: Infrastructures and Time: Conflicting Temporalties in Hydrocarbon Megaprojects

1 Introduction

Global developments in the energy sector have seen a 'transformational growth' in energy infrastructure (Bridge *et al*, 2018: 2). Central to this has been the re-centering of national development within projects. Tanzania has been no exception to this, and within the hydrocarbon sector, the country has two megaprojects that are essential for the exports of hydrocarbons: EACOP and the LNG plant. This chapter focuses on the temporalities behind both projects. While they differ in terms of technicality and timescale of construction, both are central to the government's aims for the hydrocarbon sector. However, both projects have failed to progress, leading to questions about why this is the case. Specifically, this chapter focuses on how the conflicting short-, medium- and long-term strategies have allowed for a lack of 'synchronicity' within the project. The idea of synchronicity in extractive projects is not a new concept (D'Angelo and Pijpers, 2018; Jordheim, 2014). Synchronicity in extraction means 'organizing temporal levels, speed and rhythms of production, as well as producing temporal narratives that support or contest such organization' (D'Angelo and Pijpers, 2018: 216). Both synchronicity and non-synchronicity are a result of active work by social actors to establish or maintain 'temporal regimes' (Jordheim, 2014). In essence, competing time horizons and priorities have been different between the government, the IOCs operating in the country and even between the IOCs themselves.

As mentioned in the introduction of this thesis, the EACOP project is a planned electronically heated pipeline that will transmit crude oil from Hoima, Uganda, to Tanga in Tanzania. It is essential for the transport of Ugandan crude oil for export, as it is considered cheaper and safer to the alternatives of transporting the oil by either road or rail (EACOP, 2020b). With data collection focusing on the Tanzanian portion of EACOP, this chapter focuses on the temporalities of the Tanzanian side of the project, and why it has resulted in suspension. The reasons why are intertangled with the Ugandan oil industry, but the data from this section primarily comes from Tanzanian sources.

At an estimated cost of $30bn, the LNG project in Tanzania would be one of the largest capital investments in Africa (Pedersen and Bofin, 2019). The construction of the plant

is essential for export to Asian markets. The LNG process first removes impurities such as dust, water, and heavy hydrocarbon chains, then condenses the gas into a liquified state by cooling it at -160^{o}c, making the volume of this liquid state roughly 600 times smaller than its gaseous form (EIA, 2020b). The alternative to exporting gas from LNG would be to export gas in its gaseous form through a pipeline. While there could be a domestic and regional market for gas, the regional demand and lower gas price would not justify the extraction of deep-sea gas, nor the construction of either a land or sea-based pipeline. Hence, this physical change is essential for intercontinental export. According to the Tanzanian government, work on the project is expected to start in 2022 (Reuters, 2019b). Although scholars and analysists remain sceptical on this timeline (Mihalyi and Scurfield, 2020).

For Tanzania, export of gas to the Asian market has been deemed essential to justify the cost of the plant. However, there has been growing distrust between actors and conflicting strategies that have paused the negotiations. This chapter explores the temporalities behind the LNG and EACOP projects. It focuses on the negotiations and legislation, as well as the surrounding political context, to explain how the actors that are involved in both projects time horizons have changed, and what are the causes of these changes. As it will be shown, these changes in the government and the IOCs are not monolithic, with different priorities within government and between IOCs allowing for a lack of 'synchronicity' for the project. Adding to the issues of progression has been the technological and financial changes in the global energy supply, revealing contrasting opinions over the viability of the projects. This chapter will argue that it is the competing perceptions of the future, which take legislative and market changes above into account, as well as mid to long term political and business strategies, have allowed for de-synchronicity within the project.

This chapter specifically engages with the second and third sub-questions of this thesis, as well as the overarching research question. For the second question, which is seeking to understand how time is utilised in extractive resource governance, it engages with the new legislative changes and negotiations have changed both the government's and IOC's perspective of the future in regard to hydrocarbon infrastructure development. It highlights how the delays in the progression have also caused schisms between the IOCs over the direction of the LNG project. It also highlights the political factors behind such legislative change, as well as how the political time horizons of both the Tanzanian government and IOCs have affected progression of the projects. It engages with the third sub-question by

examining how technological change in the gas sector has altered the materiality of natural gas, and how this has altered the time horizons of state and private actors.

This chapter is organised as follows: first, it will bring a spotlight to the project's respective timelines and the IOC strategies, highlighting competing long-term visions of LNG's benefits. Section three expands on the build-up and progress of negotiations to the present day, highlighting that while there have been difficulties, there have been noticeable exceptions, particularly in issues around land. The succeeding section explores the temporalities behind these issues, arguing that that there has been a lack of synchronicity between the different actors, which have aided the current impasse. However, these have been at different spatial levels for both projects. Section five concludes.

2 Timelines and Strategies

Project timelines allow for a clear, linear, and planned structure of the future, with each phase providing a list of required events and processes to occur to transfer to the next phase. These are often presented in clean diagrams in investor documents and hide the often messy and disjointed process to progress through the various stages. It is not uncommon for projects to be delayed (e.g., Olaniran *et al*, 2015). Various factors in the early stages, from the geological, to the economic to the political can either disrupt or cancel extractive projects altogether.

Such megaprojects also play an important role in political, economic, and business strategies. This is both for state strategies and IOC business strategies. IOCs utilise such strategies for both economic and political purposes; the transport of refined or unrefined hydrocarbons is essential to sell petroleum products, and oil companies, both of the IOC and NOC variety, have participated in projects for geopolitical and business strategic reasons (e.g., Volman, 2003). For states, the completion of energy megaprojects can be for energy security reasons (e.g., Bahgat, 2002), but can also shape and limit national imaginaries (e.g., Jasanoff and Kim, 2009; Howe *et al,* 2015). As Larkin (2013) notes, infrastructures exist 'as forms separate from their purely technical functioning' and 'they emerge out of and store within them forms of desire and fantasy and can take fetish-like aspects that sometimes can be wholly autonomous from their technical function' (Larkin, 2013: 329). In essence, infrastructures can be equally symbolic as they are practical.

2.1 Project Timelines and IOC Strategies

2.1.1 LNG

Even though the projects were planned at different times, the EACOP and LNG projects are currently at similar stages in their respective timelines, with both projects currently in discussions for a host government agreement (HGA), and neither project is close to a final investment decision (FID). Discussions over the LNG started in 2012, after quantities of gas were sufficient to justify a plant for export (Financial Times, 2012). At the time, the projected date for production was 2020 (IMF, 2012). HGA negotiations over the key terms started in 2016 (Pedersen and Bofin, 2019). Discussions for the EACOP project started after the pipeline route was decided in 2016, with the Intergovernmental Agreement (IGA), already signed between the Tanzanian and Ugandan governments.

An LNG plant in Tanzania is estimated to cost $30bn spread out through the four to five years of the construction phase. Once the HGA key terms are agreed and the pre-front end engineering design (FEED) and FEED have been resolved, construction on an LNG project will take approximately four to five years (Shell, 2018b; Equinor, 2018) (Figure 12). In short, this means that the LNG project could take up to a decade to reach the production phase, and thus start to recoup the investment made. Considering the current annual GDP of Tanzania is at an estimated $58bn (World Bank, 2020),[141] the investment potential of the LNG is huge; during the construction phase of the project, economists from the Tanzanian central bank estimates that the project will increase the annual GDP of the country by two percentage points (Reuters, 2019b). If this project progresses, it is expected to be one of the most capital-intensive infrastructure projects in the history of the African continent (Pedersen and Bofin, 2019).

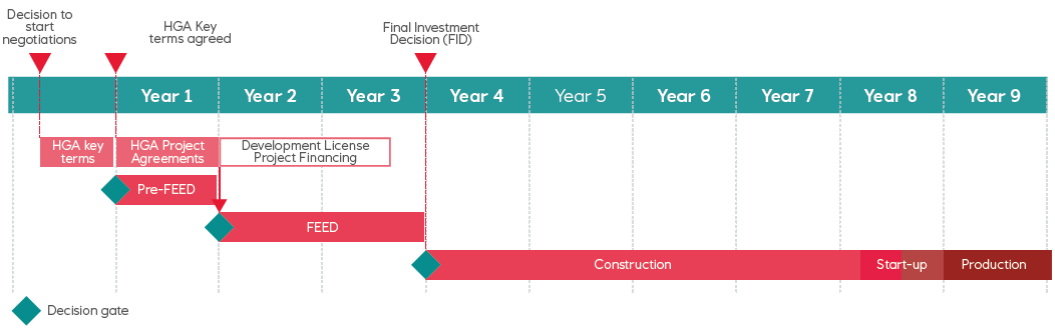

Figure 12: LNG project schedule (Equinor, 2018).

[141] Obviously, there are considerable difficulties in estimating the GDP of African countries. Hence, this figure needs to be taken with a pinch of salt. For further literature on the difficulty of calculating GDP of African states, see Jerven (2013). For measuring the economic performance of Tanzania, see Jerven (2011).

LNG has become an increasingly important part of IOC operations. It is important to recognise the energy trends of the late 2000s and the forecasts for natural gas and LNG during this time period to understand why IOCs invested in Tanzania and desire an LNG plant. Since 2000, growth in demand for natural gas has been the fastest out of all hydrocarbon sources. Between 2015 and 2030, Shell predicts that global demand of gas would increase by 2% a year, while LNG would rise between 4 to 5% a year, with most of this demand from Asia (Shell, 2017), while ExxonMobil expect LNG volumes to more than double by 2040 to meet demand (ExxonMobil, 2017). In essence, natural gas, and in particular LNG, is growing, and companies have sought deposits in countries which could supply the Asian market.

Political factors have contributed to this rise in demand. Chief among these is government policies, particularly in Europe and China, that have set targets to lower carbon emissions. IOCs have presented natural gas and LNG as a short to medium term solution to lower carbon emissions (e.g., Shell, 2018a; Equinor, 2020a). Despite 'greenwashing' claims (Stephenson *et al*, 2012), natural gas is portrayed as a 'bridging fuel' in the transition to low carbon energy supply by IOCs.

It is within this backdrop of growing gas demand, political policy changes and growing gas prices, help explain why Tanzania became an investment destination for natural gas exploration and site of a potential LNG plant. For example, BG Group, one of the first IOCs to explore in deep sea Tanzania, strategic focus was on both exploration and LNG (BG Group, 2012). LNG strategy focused on shifting away from supplying LNG to the USA, to the Asian market, and in particular China (BG Group, 2013). While the company at the time desired an LNG plant in Tanzania, their chief focus for LNG development was based in Australia (BG Group, 2013). Shell's purchase of BG Group in 2015, was in large part to further diversify into natural gas, deep sea fields, and LNG (Financial Times, 2015; Reuters, 2016b). In a similar vein, Equinor considered Tanzania one of three potential 'offshore clusters', whereby the company 'holds operatorships and has a mix of assets in different stages of development….to achieve greater economies of scale, capture synergies and thereby increase profitability' (Equinor, 2012: 7-8).

It is worth noting that, while the initial sums of investment are large in a Tanzanian, and in some respects, an African context, Tanzania was, and remains, a small part of IOCs business portfolios. This can be seen within the capital expenditure of some of the major firms that operated in Tanzania. For example, BG's capital investment in Tanzania for 2013 and 2014, at that time one of the largest investments in Tanzanian gas, was reported at

$0.4bn and $0.3bn, respectively. This is out of a total annual capital investment of $11.2bn in 2013 and $9.4bn in 2014. In sum, Tanzanian exploration at its height accounted for 3.6% of BG's capital expenditure in 2013, and 3.2% in 2014 (BG Group, 2013; 2014).[142]

In this respect, for the IOCs covered in this section, while the Tanzanian fields were a growing asset during this time, they were never a vital asset to any company's portfolios. Tanzanian gas was part of the 'diversification' of global hydrocarbon assets, with their geographical position, are seen to be potential suppliers to Asian markets for the future. In this respect, East African hydrocarbons are a small part in larger medium-term strategies of supplying Asian markets and reducing carbon output in an 'greening' global economy. This would change if the LNG project went ahead. Rather than a small investment (by IOC standards), a Tanzanian LNG plant would require considerable funds and borrowing to begin construction.

There has been little progression in the advancement of the LNG project, bar the seizure of land required for the project in Lindi (Pedersen and Kweka, 2017), which will be explored in greater depth below. At the time of writing, key terms for the project have not yet been agreed. The LNG project is currently in discussions for an HGA and awaiting an FID. Issues around the project, which are explored below, have made some industry insiders sceptical that the project would go ahead at all (Petroleum Economist, 2020). The work on the project itself is very technical in nature and requires specialised manufacturing and skills, further questioning the probable start date of the project.

2.1.2 EACOP

Compared to LNG, EACOP's original timetable is considerably shorter. The projected timeframe of EACOP was four years from its inception to first oil. The time from FID to the completion of the project was to be two years. Due to the fact that there are two countries included in the project, the project requires two HGAs, as well as an IGA, which is explored in greater detail below. Hence, while there may be more time spent negotiating, there is a short timeframe for construction. Compared to the LNG plant, construction is simpler, with the potential for greater participation of domestic business and labour, which is covered in greater detail in the next chapter. Alongside negotiation, the biggest factor for the project's

[142] Percentage calculations are authors own calculations.

success is tied into the projected date of Uganda's 'first oil', a term used by IOCs when oil is first extracted for commercial use.[143]

EACOP has a shorter construction period but is expected to cost $3.5bn, spanned over two years in both Uganda and Tanzania (Figure 13). With roughly 80% of the project going through Tanzania, and the oil jetty being constructed north of Tanga, most of the expenditure will be located in Tanzania. Considering the short timeframe, and the amount of investment the project could bring into the country, it would appear that the project could provide a short-term boost to the economy, as well as providing opportunities for business and labour participation.

Figure 13: Original EACOP Schedule (EACOP, 2017).

As it will be shown, the delays currently seen in EACOP is less to do with the project itself, but rather issues in the Ugandan upstream sector over the farming down of a stake in the industry between Tullow Oil and Total (Reuters, 2019c). These tax issues have been exacerbated with ongoing low oil prices. Hence, while there have been pressures on both governments to push ahead on the project, disagreements with the Ugandan government and the IOCs present there have ensured that the project will not start in a timely manner. Therefore, the Tanzanian government is at the whims of the wider issues within the Ugandan oil industry and is entirely dependent on the date when Uganda reaches 'first oil'.

2.2 Tanzanian Policy and Strategies for LNG

Tanzanian strategies around the use of gas has been consistent throughout both the Kikwete and Magufuli administrations. As mentioned in chapter four, this centres around directing gas towards the domestic market for development, particularly in petrochemicals. This can also be seen in the 2013 draft natural gas policy, which stated that the government

[143] The route to 'first oil' is highly uneven and is dependent on a variety of factors such as the nature of the state, the amount of capital required and the technical difficulty to extract oil (Weszkalnys, 2008; 2014; 2015). Despite this, the amount of time it has taken from discovery to 'first oil' in Uganda has taken a considerably long time (Polus and Tycholiz, 2016).

shall 'ensure that domestic market is given first priority over the export market in gas supply' (GoT, 2013: 9). Alongside this, under the PSAs with the IOCs, a portion of the production from LNG projects is reserved for the domestic market (World Bank, 2014b). Market analysists suggest that it would be a difficult balancing act to both pursue domestic and export commitments (World Bank, 2014b).

One of the most striking differences in the responses over questions about the gas industry between private and public interviewees was where their geographical focus for in their answers, even for similar questions.[144] For public officials, discussion around gas would centre around domestic consumption and local development. Interviews with the private sector, on the other hand, would focus on the need for international export and the construction of infrastructures to ensure this happens. While export of natural gas remains an official position of the government (GoT, 2015b), it is clear that alongside export is a demand that natural gas aids domestic development. This was summarised by a retired TPDC executive:

> Deep sea gas, given location of gas and pipelines, it is very expensive to exploit. The LNG is a huge project, and the politicians think LNG equal's export. If there is a domestic use of the gas, why should they export? They need a big project to stimulate local demand to generate revenue. However, gas is not able to be exploited without LNG. Once export is made, domestically it will take a long time to develop infrastructure to be used domestically. You can't use Tanzanian gas without high costs.[145]

In this respect, while negotiations for the LNG are ongoing, the core focus for the government is what gas can do domestically. Tanzania has planned to use the LNG plant as a project that could aid industrial development in the country (GoT, 2016a). One of the ways this is being attempted is through local content initiatives; although early into the project, local content has been described as a 'sticking point' in discussions.[146] Disagreements over local content and wider industrial policy reflect common IOC opposition talking points to stringent local content measures: that they are hard to achieve, they do not want to go into joint ventures, and that it should only apply to the higher tiers of tenders.[147] This in part is due to the fact that the 'one-project' skills required for construction are incredibly specialised, and are not conductive to aid wider local content aims.[148] Though construction

[144] There are of course methodological issues to consider. While I looked to tailor questions to people's expertise, the questions asked about the future of the industry garnered the different responses.
[145] Retired Senior TPDC Executive Interview.
[146] Group Interview, Oil and Gas Bank Executives, Dar es Salaam, 22.02.2018.
[147] Interview, State Senior Executive 1, Dar es Salaam, 21.03.2018.
[148] Oil and Gas Bank Executives Interview.

of this project is in the short- to medium-term, the skills required for technical aspects of plant construction require considerable time to learn, and will only need to be utilised during the construction (Mokhatab *et al*, 2013). Despite IOC opposition, the 2017 local content legislation (GoT, 2017b), which significantly strengthened local content requirements across the petroleum sector, allows for a variation of local content requirements for the LNG project if required so by the minister. This suggests that local content is less of a 'sticking point' than IOCs and financiers suggest.

LNG being used for domestic development is better seen with the project domestic demands for industrial development and electricity generation. This balancing act can be seen around the number of trains the LNG plant will use. LNG trains liquify and purify the natural gas, and therefore increasing the number of trains increases the production capacity available. Due to its domestic commitments, the Tanzanian government desired two trains, which would allow for international export and domestic use (GoT, 2015b). Indeed, the projected domestic and export demand of LNG (see Table 7) was based on two trains, claiming that if three trains are built, domestic results will be minimal, while at four trains, the projected exports and domestic demands could not be made simultaneously (GoT, 2015b). These domestic demands, as well as the lower number of extractable reserves, have made the break-even price of LNG higher than neighbouring Mozambique, at an estimated $7 per MMBTU (World Bank, 2014b).

	Domestic Demand							**Export**		**Total**
User	Electricity	Household	Institutions	CNGV[149]	Industries	Petrochemicals	Iron and Steel	LNG	Pipeline	
Demand (TCF)	8.8	0.5	0.1	0.6	3.6	4.3	1.1	11.1	3.1	
Total (TCF)							19		14.2	33.2

Table 7: Summary of Projected Gas Demand 2025-2045 (GoT, 2015b).

Much like the wider industrial strategy discussed in chapter four, Tanzania's gas strategy revolves around the domestic use of gas for industrial development. LNG is central to this for the supply of gas to a projected domestic industrial sector. Unlike EACOP, the end product, rather than local content during the construction process, is perceived as the catalyst for industrialisation. While local content requirements are in place in the 2017 legislation, the laws also include a clause allowing for the raising or lowering requirements for the project. The largest example on how the LNG project is projected to aid national development has been through the projected domestic demands of gas in the country.

[149] Compressed Natural Gas Vehicles.

Despite being a megaproject for export, LNG is viewed as a direct part of domestic industrialisation, either through piped offshore gas or LNG re-gasification to supply gas for wider developmental and industrial benefits. In this respect, the government is planning to use LNG beyond its intended use of generating export revenues for the state. The planned use of the LNG project should not be a surprise to other actors involved on the project, as it fits in with the imagined future of gas as tool for Tanzanian development.

3 Negotiating Infrastructure Projects

With both projects currently unable to progress without an HGA in place, one must explore the reasons behind why the project has not progressed in the negotiation phase. There are a multitude of reasons for this, some of which apply to both projects, and some that apply to just one of the projects. This section explores both issues shared by projects, as well as individual factors which are, or have, affected negotiations. Much of these tactics and desires of both the IOCs and the government relate back to strategy and competing visions of the future for the LNG project.

3.1 Obtaining Land

Historically given configurations of land ownership can both either inhibit or encourage extraction (Fine, 1994; Capps, 2012). Under the *Land Act*, the president holds land officially on the behalf of all its citizens (GoT, 1999). While foreigners cannot officially own land, individuals and corporate bodies can own land under the *Tanzania Investment Act* (GoT, 1997). This is in the form of a lease for 33, 66, or 99 years (GoT, 1997). As land is owned by the government, the seizure of land, including village land, can be authorised by the president. Because of the land ownership model of Tanzania, the acquisition of land for the LNG project and EACOP proved to be a quick process.

At the beginning of the LNG negotiations, the IOCs wanted a floating LNG (FLNG), which would have been an LNG plant based offshore (Songhurst, 2016). This is the form of LNG plant that is currently under construction in neighbouring Mozambique. Such a plant was considered advantageous in the Tanzanian context due to the fact that the gas fields are dispersed over a wide area offshore, and a FLNG can develop offshore fields and later be towed towards different fields when the original one is depleted (Financial Times, 2017). There is also the issue of risk, as it could be harder to become a target for potential insurgents or militias when compared to a static land-based plant.[150] The Tanzanian government

[150] This has not stopped attacks on FLNG staff in Mozambique (Financial Times, 2019b).

opposed such a measure, instead wanting a land-based LNG plant (Songhurst, 2019). This was in part due to the government wishing to establish sovereignty over the project (Pedersen and Kweka) and is also an example on how infrastructures can be symbolic in their use. Section 149 of the *Petroleum Act*, enshrined this position into law, stating that 'all gas processing facilities shall be located onshore' (GoT, 2015d: 82). Alongside land for the LNG plant, the government has seized land next to the plant for an industrial park for petrochemicals (Pedersen and Kweka, 2017).

The issue of obtaining land was seen as a 'major bottleneck' for the progression of the project.[151] Yet, as mentioned before, the president owns the land on behalf of the Tanzanian people. Hence, the government has seized the land. Similar actions have occurred in the mining and gas industry (Lange, 2008; Kamat, 2017). Much like these land seizures, the grabbing of land in Lindi has not been without controversy. This process has become a point of consternation for IOCs:

> 'We want the resettlement to be handled cautiously for the two or three very good reasons. One is that the project is very early stage, the government does not want to hear it, but the project will only go ahead if it is economically viable, and we have not reached that stage yet. As far as the IOCs are concerned, we are in pre-planning stage. We still need to go through pre-FEED, FEED, financial closure, and only then we'll see if the project is viable. Only then would really like to see the resettlement plan go through.'[152]

In this respect, while the government has cleared one of the 'bottlenecks' of the plant, it has acted prematurely. International loans will be needed for the project, and these mean that International Finance Corporation (IFC) standards will need to be adhered to in regard to compensation.[153] This is a potential complication because while the land has been obtained, it may have not been obtained to the standards required to access loans to fund the LNG project, as companies from the global north need to ensure that due diligence has been applied to land acquisition (Pedersen and Kweka, 2017). The land deal was finalised in 2016 (Reuters, 2016a). In this respect, the geographies of the project itself has been resolved before the project has officially begun; the space of control for the LNG project has been established for the construction of the plant as well as its planned export.

For EACOP, the importance of land acquisition for the pipeline was paramount to advance in Tanzania. As mentioned in the introduction of this thesis, land cost for the project

[151] Interview, Senior Engineer, Dar es Salaam, 24.11.2017.
[152] Interview, IOC Senior Executive 1, Dar es Salaam, 04.12.2017.
[153] A similar issue has arisen in regard to the EACOP project, whereby villagers on the route have claimed they were not compensated enough.

was a large factor in the choice of route. The control of land for the project was paramount for both governments and IOCs. This could be best seen with article three of the IGA:

> 'Each state party shall take all the necessary actions to ensure the acquisition and grant of land rights in its territory to, and the maintenance and possession of such land rights by, the project company and to protect such land rights (whether in relation to land rights over such state parties land or public or private land) under fair, transparent legally enforceable and clear commercial terms and conditions *in favour to the project company*' (Emphasis added) (GoU and GoT, 2017).

In this respect, the government model of land ownership has not just brought decreased costs for the company, but the government has also ensured the project company, in this case EACOP, is given preferential treatment in the case of disputes of land ownership. It serves to highlight the importance of the project for both countries, but also how issues between local communities and EACOP will be resolved in the latter's favour to ensure quick project implementation. Furthermore, it highlights how both governments, which have been characterised as hostile to IOCs, will align with IOCs interests over local populations when it is beneficial for the progression of extractive sectors. This is common in states that have pursued resource nationalist agendas (e.g., Veltmeyer, 2013; Laing, 2020a). In terms of controlling the surrounding space for EACOP, international capital and government's agenda are united.

Like the LNG plant, there are issues surrounding compensation in EACOP. The method for villagers to make a complaint is either through direct contact with pipeline workers and representatives, or through the EACOP office, which is in Dar es Salaam (EACOP, 2020a). Both of these methods limit people's ability to complain about land acquisition as there is considerable distance between Tanga and Dar es Salaam, and the way to make an official grievance to pipeline workers would be during the construction of the project. This is furthered by the fact that, while there are systems to report grievances to the company, these have not been advertised to residents closest to the project.[154]

Issues around land have already occurred in Tanga. As mentioned in the methodology section of this thesis, my movement in the region was limited out of fear of being fed 'incorrect information' by a 'plant' on the pipeline.[155] It is hypothesised that this was around the issue of land compensation to villagers whose land were seized for the

[154] Group Interview, Chongoleani Villagers 1, Tanga, 18.09.2018; Group Interview, Chongoleani Villagers 2, Tanga, 19.09.2018. I explained the procedure to those interviewed, using the Swahili version of EACOP's website.
[155] Fieldwork Notes, Tanga, 14.08.2018.

pipeline as this was reason for not allowing my visit to the villages near the site by local government officials. Much like the LNG project, compensation for land has already been processed before the FID. The rate of compensation for the land was Tsh 2,000,000 per hectare,[156] which some villagers felt was not enough. Some villagers had not been compensated at all and some have not been able to build new homes to restart their lives.[157]

IFC standards, which need to be adhered to for loans to ensure the project goes ahead, state that compensation should be for loss of assets at replacement costs, which is defined as 'the market value of assets plus transaction costs' (IFC, 2012: 1). Given the concerns of the local government about my presence and research, it could be possible that the compensation process was not in line with IFC standards. There are already pressures from NGOs over not to finance the project due to compensation not meeting IFC standards (Banktrack, 2019). Furthermore, land compensation occurred before the completion and publication of the Tanzanian portion of the Environmental Social Impact Assessment (ESIA) (EACOP, 2020b).

The interaction of land acquisition and progression of the projects are intertwined: For EACOP, because of the relative progression of the project, combined with the political pressure exerted by both the presidents of Uganda and Tanzania, the project was synchronised to progress at the planned pace of the original timetable. For the LNG project, while it was a benefit to the project overall to obtain land, the methods used may create problems for the future. While there was little concern presented by EACOP representatives over the method of land acquisition,[158] the complaints by villagers over issues of compensation suggest such issues come under the scrutiny of IFC regulations in the future.

The centralised land ownership model of Tanzania, where land is owned by the state, has allowed for both a competitive advantage for obtaining EACOP and an acceleration of the project's progression; this is due to the fact that the land ownership model of Tanzania allows for the bypassing of negotiation with multiple landowners, instead just negotiating with one party – the Tanzanian government. For both projects, particularly EACOP, this land model was considered favourable towards extractive capital due to lower costs, particularly when compared to the private land model of Kenya. In essence, while the land ownership model is discouraged in neoliberal governance and appear hostile to foreign capital, in

[156] This is roughly $875.
[157] Chongoleani Group Interviews 1 and 2.
[158] Interview, IOC Senior Executive 2, Dar es Salaam, 12.03.2018.

practise in the hydrocarbon industry it has allowed for a faster progression of project timetabling when compared to more liberal forms of land ownership. The speed of land acquisition can be seen by the fact that it is one of the few areas of both projects that has progressed, although paradoxically it could all be for naught due to the fact that an FID has not yet taken place for either projects.

Due to the model of land ownership in Tanzania, the act of acquiring land has not been difficult. While there has been issues over the handling and compensation of land acquisition from the IOCs, the government's actions to seize land has allowed one 'bottleneck' to be removed for the LNG project. Furthermore, taking into consideration the IGA between Uganda and Tanzania, the interests of the governments and the IOCs are parallel; the land earmarked for use in hydrocarbon infrastructure projects will take precedence over local issues and potential objections. In this respect, the issues of control of space have been resolved, with land required for the project obtained and the government additionally using this procedure to, in their view, reinforce sovereignty. The questions around the delays are more temporal in nature, and relate to cyclical markets, shifting time horizons, and global technological changes in the sector.

3.2 LNG Divisions

Compared to the rest of the negotiation process for both projects, the acquisition of land has been smooth. For the LNG, HGA negotiations over the key terms started in 2016 (Pedersen and Bofin, 2019), and are still ongoing at the time of writing. Much like EACOP, Magufuli publicly called for the LNG project to be sped up (The East African, 2016b). This did not happen. Interviewing IOC personnel, three factors appeared to behind both the erosion of trust between the government and IOCs and were to blame for the lack of progression in negotiations: the change in the president, the parliamentary investigation into hydrocarbon PSAs, and the passing of the 2017 new resource legislation. IOC personnel interviewed felt that the LNG project is not a priority for the government, pointing to the fact that there was not a full-time team at either the ministry of energy or TPDC focusing on LNG negotiations.[159]

To see the negotiations at an impasse due to a lack of political will, or inexperience by the government, would be simplistic description of what is occurring. As it will be shown, the legal changes and Magufuli's tactics have eroded trust between the government and IOCs. There are, however, other factors at play, all of which have contributed to the lack of

[159] Senior IOC Executive 4 Interview; Senior IOC Executive 1 Interview. This was confirmed to me by a retired senior TPDC Executive.

progress of negotiations. Discussions with Tanzanian government personnel highlight a zero-sum mentality when it came to LNG negotiations. This is combined with a more domestic agenda around utilising the hydrocarbon sector for development. Catalysing the delays has been the IOCs themselves in that they are not united within their strategies to progress the project and how to distribute the benefits of the project in the future.

The election of Magufuli brought about considerable changes to both the priorities of the government and changes in personnel throughout most of the bureaucratic structures of the government. For the LNG project, this has been more in changes of rhetoric and tactics rather than an overall departure from a domestic gas agenda set out during Kikwete's tenure. This change in priorities, rhetoric, and tactics have hampered negotiations.[160] IOC personnel interviewed felt that the new resource laws had both eroded the trust between the government and the LNG group, as well as setting new parameters for the government negotiating team. The passing of multiple resource legislations in 2017 have been attributed to the exacerbation, but not the cause, of delays for the LNG project (Sørreime, 2019).

The beginning of the negotiation process consisted of exchanging two term sheets: one from the IOCs, and one from the government.[161] This was considered by one IOC representative to be a unique approach by IOCs.[162] The idea behind it was to combine the term sheets into a singular document through the negotiation process.[163] The first meetings did not prove fruitful; the IOCs handed over their sheets in March 2017, however the government negotiating team did not due to the fact that they had to revise their terms to fit in with the 2017 legislative changes that was set to be passed and alter the governance of the sector significantly.[164] These new resource laws would prove to dominate discussions. Two IOC respondents, both from different companies, described how the legal changes affected the negotiation process:

> 'The IOCs submitted the draft term sheet [for the LNG] in March of this year, the government side responded in September. The 'changing of the rules of the game' occurred even within the government; the negotiating team were ready to come with their counter-timesheets before July, but with the new laws that were being put in meant they had to move it back to make sure it conforms with the new laws. How are we going to negotiate at the end of the day?'[165]

[160] Senior IOC Executive 1 Interview.
[161] Ibid.
[162] Senior Engineer Interview
[163] Senior Engineer Interview; Senior IOC Executive 1 Interview.
[164] Senior Engineer Interview; Senior IOC Executive 1 Interview.
[165] Senior IOC Executive 1 Interview.

'When we arrived at the meeting, the government negotiating team announced they would not provide responses to our questions, they were now more interested in discussing what approach we are going to take to combine the two documents. There was a lack of ownership within the government negotiating team, they could not really own, as civil servants, the terms. They were obliged to review their draft, to align with the law. But they had not had the audience with the authors of the law, to get a clarification or to understand what the spirit of the law was, what the thinking was, and in particular how it impacts the negotiations with the IOCs for the LNG project. They were put on the spot, and they attempted to respond to the many questions that we had. I believe there is a dark cloud hanging over [the negotiations].'[166]

These legal changes were viewed as 'non-inclusive and non-consultative'.[167] However, these legal changes are not guaranteed to affect the project. The IOCs desire a project law in the HGA to govern the project, and therefore protect it from potential future issues or new administrations and ensure legal stability. The HGA will define the fiscal and operational framework of the investment, as well as establishing a group of laws under a 'project law' that will govern everything on the project, ranging from local content to fiscal issues, such as tax exceptions (Pedersen and Bofin, 2019). Because of this, if the project does proceed, portions of the new resource laws may not be in the final document.

The recent legal changes therefore are not the final word on the matter for the LNG project. This is supported by the fact that some Tanzanian interviewees involved in the sector have stated that the laws are 'living' or 'guiding' documents that can be changed.[168] IOC personnel were more adamant in their responses to the laws, with one executive claiming that if the laws were applied to the LNG project or the wider offshore sector, there would be no LNG.[169] This was compounded by the fact that extractive projects, including the LNG, could be opened up at any time for renegotiation if the terms were considered 'unconscionable' (GoT, 2017d), the removal of international arbitration (GoT, 2017a) and placing money required for the project into domestic banks (GoT, 2017a). The temporalities of these acts are analysed in chapter eight of this thesis.

Alongside legal changes, priority was given to examining the PSAs signed between previous governments and MNCs, this strategy to do so has been in the form of parliamentary investigations.[170] The parliamentary investigation into the PSAs started on 2nd of January 2018 (The Citizen, 2018a), and follow on from similar investigations into the gold mining

[166] Senior Engineer Interview.
[167] Ibid.
[168] Interview, Member of Parliament, CCM, Dar es Salaam, 16.02.2018; Senior State Executive Interview 2.
[169] Senior IOC Executive 4 Interview.
[170] These investigations have not affected the EACOP Project.

industry, which resulted in a temporary export ban and considerable fines for Acacia mining (Financial Times, 2018a). Negotiations were paused by the government in mid-2018 to allow a review of the PSAs (East African, 2019). While the investigations into the PSAs involve all IOCs currently operating in Tanzania, there was the feeling that these investigations were targeting the 'LNG group' of IOCs.[171] One respondent even suggested that the investigations were written by the Tanzanian secret service, and that the parliamentary report was just a façade.[172] This obviously could not be verified, but it nevertheless highlights the high level of mistrust between the IOCs and the Tanzanian government.

Whilst the above would suggest that the IOCs are united in their response towards the government on the LNG project, the opposite is true. There are divisions over the strategy and how to move forward between IOCs on the LNG project. The IOCs of the 'LNG group' rarely meet to organise a collective response, and this has made negotiations harder.[173] This is combined with the fact there is a disagreement over the financial fundamentals of the project between the IOCs.[174] This has been chiefly between Shell, the project's head contractor, who have experience in the construction of LNG plants across the world, and Equinor, who do not have the same level of experience in LNG, with Tanzania being their first LNG project outside of Norway (Equinor, 2020b). [175] This ensures that the perceptions of the future of the LNG project for Equinor are fundamentally different to that of Shell; Equinor has sought to speed up the progress of the project with their team,[176] however Shell has been adamant that the project should go forward with all parties together, at a slower pace.[177]

Alongside strategy, compounding this difficulty has been the fact that there is different PSAs for the different gas blocks, with different agreements and demand. For all companies to join on the LNG project, they have to agree the specifics, such as who will get first revenues.[178] This has not been agreed, neither has the strategy on how to approach the government and present a unified front. Interviewees from IOCs, the government, and independent analysts all noted the division in the LNG group.[179]

[171] Senior IOC Executive 3 Interview.
[172] Senior IOC Executive 4 Interview.
[173] Interview, Independent IOC Lawyer, Dar es Salaam, 18.03.2018.
[174] Senior IOC Executive 4 Interview; Independent IOC Lawyer Interview.
[175] Independent IOC Lawyer Interview.
[176] Senior State Executive 1 Interview.
[177] Senior IOC Executive 4 Interview.
[178] Ibid.
[179] Senior State Executive Interview 1; Senior IOC Executive Interview 4; Independent IOC Lawyer Interview.

During fieldwork, there was suggestions that a smaller LNG project with Equinor as the head of the project might break the deadlock and fast-track the project. According to Shell, this project would 'kill any other [LNG] development', [180] as this LNG would primarily service block two, Equinor's block. It would not be financially viable to construct another smaller LNG plant for the remining three blocks. Since fieldwork, Equinor has opened its own negotiations with the government over a smaller LNG project, (Reuters, 2018c), although current progress has been minimal. If this goes ahead, a larger LNG will become economically unviable, leading to questions over the remaining blocks that Equinor does not have a stake in. This development highlights a potential synchronicity between Equinor and the government; Equinor desires speed up progress on LNG discussions to construct an LNG plant outside of Norway and is prepared to make a smaller plant to service block two. This would fit into the government's developmentalist agenda, whereby a smaller plant would allow for some gas to be used domestically.

The lack of unity between IOCs has been a factor behind the lack of progression of talks. Whilst the government has delayed negotiations through the investigation into the PSAs and legal changes, the differing strategies, and attitudes towards the LNG project between IOCs has ensured that there is a lack of unity on the IOC side of negotiation. Central to this has been the time horizons of the IOC actors; Equinor has looked to speed up the project to fulfil their own corporate strategic goals, whereas Shell, the LNG project head, has attempted to combat the legal changes that were passed in 2017. This has denied potential synchronicity and delaying the project further. This is similar to the synchronicity of the project as a whole; multiple parties have failed to harmonise desired timescales for the projects future, and despite the importance of the project to the gas industry as a whole, has created an impasse in negotiations.

4 Conflicting Cycles

Considering the fact that both projects are officially recognised as important to the development of the country, combined with the fact that land has been acquired to ensure the project goes ahead, the question remains why have both projects struggled to progress beyond the HGA stage of their respective timescale. To understand why, one must look at the diverging interests that have caused a lack of temporal synchronicity both projects have experienced. These have been frictions between the main actors on the project, chiefly, the

[180] Senior IOC Executive 4 Interview.

government and the IOCs. However, the causes behind the difficulties in negotiation for both EACOP and LNG have been different; with the former struggling due to disputes between Uganda and IOCs. However, both projects have been facing market pressures both in the form of commodity prices and technological change. For the LNG, while there has been growing questions over financial viability of the project due to market pressures and technological innovation, there has been an additional pressure through the political cycles that have led to a lack of prioritisation on behalf of the government.

4.1 External Pressures

4.1.1 Ugandan Resource Nationalism, Oil Prices and EACOP

Upon arrival in Tanzania, there was considerable excitement towards the EACOP project, with little signs on the surface, either in the media or with interviewees, that the project would be facing delays. One senior contractor, with considerable experience in the Tanzanian hydrocarbon sector, claimed that 'Total have got all their paperwork ready to go on the pipeline. They just need the political go ahead and signatures.'[181] This, obviously proved to be premature. Within Tanzania, Magufuli publicly called for the project to be sped up to ensure completion by 2020 (The East African, 2016a).

Pressure to start the project chiefly came from the presidents of Tanzania and Uganda and the IOCs operating in Lake Albert. It was clear that this project is important for both the presidents of Tanzania and Uganda, as their personal intervention in the intergovernmental agreement proved to be invaluable for the progress of the pipeline.[182] The Ugandan government requires the project to ensure export of crude oil from the Lake Albert region and IOCs have desired a quick construction to ensure a quicker rate of return on their investment not just on the pipeline itself but also for the investment in the Ugandan oil industry as a whole. The main driver for the urgency for these actors has been financial; the faster the project is completed, the faster the export of crude oil can occur and thus revenues can be generated. This is true for all the actors directly involved in the pipeline company.

There are also domestic pressures in Uganda to consider. The pipeline project is considered 'the most important infrastructure project for Uganda in the past eighty years'.[183]

[181] Interview, Businessperson, IOC Services Supplier, Dar es Salaam, 31.01.2018.
[182] Interview, State Lawyer 1, Dar es Salaam, 21.11.2017; Interview, Ministry of Energy and Minerals EACOP Planning Coordinator, Ministry of Energy and Minerals, Dar es Salaam, 27.11.2017; Interview, Ugandan Diplomat, Ugandan Ministry of Foreign Affairs, Dar es Salaam, 15.03.2018. While there appeared to be a degree of praising the boss in these interviews, the stories they told were all very similar and media reports suggested the same.
[183] Ugandan Diplomat Interview.

There is considerable pressure to finalise oil production in the country, and this driver to export is not just to increase revenue, but also to enhance Ugandan patronage networks (Hickey and Izama, 2017). There have also been political promises that oil production will occur in the current electoral cycle, which in Uganda ends in 2021 (Economist, 2016). However, at the time of writing, Uganda is yet to begin extracting oil, and the industry in Uganda has a history of delays (Polus and Tycholiz, 2016), which have resulted in estimated date of production to be in 2022 (Reuters, 2019a), 16 years after commercial quantities of oil were first discovered in 2006.

In spite of the apparent desire to complete the project on time, since the 4th of September 2019, all technical work on the EACOP project has been suspended. Even during the height of interest in EACOP, some risk agencies questioned whether the project timeline was feasible, suggesting that it is more likely to be completed by 2023 (Assaye Risk, 2018). In 2019, Assaye Risk updated their risk calculation on the pipeline, suggesting that the biggest risk for the project was rising project costs and delays in the FID (Assaye Risk, 2019).[184] However, for the Tanzanian portion of the pipeline, the largest risk was out of their control: evolving disagreements between actors over the progress of the Ugandan oil industry.

Alongside political issues in Uganda over tax, there has been wider issues around global oil prices making Ugandan crude economically unviable. There was some acknowledgement of low oil prices could affect the pipeline project by Ugandan officials.[185] According to Ugandan personnel, the projected breakeven price for Ugandan crude would be roughly $50 to $60bbl[186] (Patey, 2015). However, independent analysists suggest that the breakeven price would be $75bbl (Henstridge and Page, 2012). Neither prices are likely for the foreseeable future. This price would have been deemed acceptable during a time of high oil prices, but not in the current investment climate.

This is exacerbated by the quality of Ugandan crude: Ugandan crude is regarded as ‘heavy’ and ‘sour’. In oil terminology, ‘sour’ crude is when the oil has high sulphur content, with low sulphur crude being described as ‘sweet’. It is more desirable to have ‘sweet’ oil as it is easier to produce. ‘Heavy’ crude is when the oil is dense compared to water. Heavy crude

[184] The other risks mentioned in the report were political disagreements, problems with construction contractors and competition from Kenya’s Turkana-Lamu pipeline, with the latter considered the least risk to the project. Since this report was published, the risk of political disagreements has subsided due to the passing of the HGA mentioned in this chapter. Issues around contractors and local content are covered in chapter seven.
[185] Ugandan Diplomat Interview.
[186] Bbl is shorthand for per barrel.

is more expensive to produce at refineries due to the length of the hydrocarbon chains. This is particularly applicable to Uganda's oil which requires a heated pipeline, as at room temperature the oil will solidify. In short, Uganda's oil is of poor quality and will be expensive to extract, transport, and refine into petroleum products during commodity booms, let alone during slumps in oil prices.

For Tanzania, there is little that the government can do to aid the progression of the project without a resolution of the tax dispute in Uganda. Magufuli has publicly called for Museveni to 'sacrifice short term gain and go for long term gold' (Independent (Uganda), 2019), but the reality there is little the Tanzanian government can do at this time. Publicly, at least, Ugandan ministers have been positive that the project will still go ahead (Observer, 2019a). One of the roadblocks to the project that is under control by the Tanzanian government, the HGA, cannot be fully completed due to the fact that under the IGA, there are certain sections of the agreement, such as local content, that must be harmonised (GoT and GoU, 2017).

In this respect, the delays of EACOP have been outside of the Tanzanian government's control; both the tax disagreement and global oil prices have made the short to medium term viability of the Ugandan oil sector questionable. Whilst the HGA for both the Ugandan and Tanzanian governments and IOCs have not been signed, there was little presumption of difficulties in the negotiations between the Tanzanian government and Total, as it was just viewed as 'a port for transport'.[187] In this respect, the HGA cannot be signed between the Tanzanian government and the oil companies operating in Uganda due to the frictions between the Ugandan government and the IOCs.

4.1.2 Technological Change and LNG Market Price

International pressures to push the project ahead come from market forces, rather than domestic intervention. The first widely publicised estimate of LNG revenues in Tanzania ranged from $3 billion to $6 billion per year (IMF, 2014). Yet, since 2015, annual LNG capacity addition has outstripped demand growth (IEA, 2020), and more established competitors have changed the global and Asian market for gas. This comes from the LNG project progressing in neighbouring Mozambique, as well as other nations that could serve the Asian market well, such as Qatar and the United States of America (Petroleum Economist, 2020).

[187] Interview, Planning Officer, Dar es Salaam, 28.02.2018.

Considering these changes in the global market. if the LNG project starts operating in the 2020s, the break-even price of LNG would have to be between $7 to $8 MMBTU (Petroleum Economist, 2020). Price forecasts suggest that the Japanese LNG price between 2020 to 2030 will be roughly around $7.50 to $8.50 MMBTU, with the latter figure forecasted for 2030 (World Bank, 2019).[188] At this projected price, some analysts question the long-term economic viability of the project altogether (Scurfield and Manley, 2017). Peak revenues have adjusted accordingly, with revenues ranging from $3.5 billion to $5 billion per year (Henstridge, 2018; Scurfield and Mihalyi 2019). Because of current and projected declining prices, Henstridge (2018) argues that the key determinant to the success to the LNG project is time: the longer it takes to get the project to production, the smaller economic benefit for the country. In this respect, it appears that changing market forces are making both projects economically unviable.

Despite concerns from MPs that the fast progression of the sector in Mozambique is being used as a reason to increase the pace of development in Tanzania,[189] for IOCs and former TPDC officials, the main international concern from international events was not the progression of Mozambique, but rather shale fracking, particularly from the US:

> Mozambique is moving towards the project. But will that affect Tanzania as such? I think in the short term; Mozambicans will surely win. It would be good if we were ahead of them, but at the end of the day it is the market that matters, I don't think that Mozambique will be able to satisfy the entire market. Number one, 2025 is far down the road, number two, is a steady growth in the market. I think we should be more worried about the Americans, with their fracking.[190]

American LNG exports from shale gas to the Japanese market started in 2016 (Forbes, 2020), and have risen from an initial 11,137 million cubic feet (mcf) in December 2016 to 32,280 mcf in January 2020 (EIA, 2020a). The US is predicted to become the world's largest LNG exporter within the next four years (Forbes, 2020). In this respect, for the IOCs, Mozambique is less of a concern than the technological advances in the sector and the growing globalisation in gas markets, combined with technological changes. Hence, the main international issue the LNG project must contend with are market focused and are combined with technological change.

[188] This was by far the highest LNG price forecasted by the World Bank, with European prices estimated between $6 to $7 MMBTU, and American prices fluctuating between $2.9 to $4 MMBTU. Note, that due to the threat of recession caused by the 2020 coronavirus outbreak, as well as the collapse in oil prices caused by a dispute between Saudi Arabia and Russia, these price forecasts may be out of date.
[189] CCM MP Interview.
[190] Senior IOC Executive 1 Interview.

Technological advancement of the fracking industry has lowered regional gas prices considerably, particularly in markets where there is little supply of conventional natural gas. While Japan has seen little advancement in fracking,[191] neighbouring markets, such as China and Australia, have utilised fracking both for domestic use and international export (Chang *et al*, 2012; Bubna-Litic, 2015). Hence, due to technological advancement, the perceptions of the future of the Tanzanian gas sector by the IOCs have become narrower. For IOCs, there appears to be a shorter timeframe the country's hydrocarbon sector can be utilised for international export to the Japanese gas market where the price can command the investment required in Tanzania. It appears that the government is oblivious to the technological changes occurring in the gas industry surrounding shale fracking, one former senior TPDC member stated that:

> The politics behind the industry is unfortunate – everyone is an expert in oil exploration. The world is changing, shale gas in the US is cheaper than deep-sea. We could be missing a window of opportunity. The issue is getting the opportunity instantly when making a discovery. What we need is to understand the industry, especially in decision making. Yet the decision makers don't see it that way, the perception is to let resources stay where they are and exploit tomorrow [sic]. You can do that with mining and minerals, but not with oil and gas. They are seeing oil and gas as a mineral, not as energy. The government doesn't want to explore any more now, they want to wait for the future.[192]

As highlighted throughout the thesis, the perception of the future has dominated the Tanzanian government's strategy with regards to deep sea gas exploitation and domestic development. The desire to wait to exploit to obtain greater developmental benefits from the gas may be admirable, but also may not happen due to the changing market dynamics of the gas sector. In this respect, commodity prices and global gas networks are changing through technological innovation, whist being in a 'bust' phase.

Advances in shale technology, despite their controversy in many countries, is cheaper to exploit than deep sea offshore gas. In this respect, the market dynamics of gas has changed since the discovery of Tanzanian hydrocarbons in the early 2010s. The advancement of shale technology has allowed for cheaper extraction of gas in the US, which has fundamentally altered the future of the gas market in Asia. This has created uncertainty over whether the current gas reserves of Tanzania may become economically unviable in the near future. This

[191] Discussions with market and hydrocarbon experts that specialise in Japan suggested that there is little fracking activity occurring within Japan itself. A search of English news sources that focus on Japan suggest that there has been little activity in the sector, with the latest news about fracking activity in Japan occurring in 2014 (Wall Street Journal, 2014). Japanese news sources were not searched as a I do not understand Japanese.

[192] Retired Senior TPDC Executive.

highlights the ways that the technologies of extraction can alter the temporalities of the natural gas market; the economic viability of Tanzania's gas reserves have been discovered and expanded upon using deep sea extraction technology from IOCs, yet technological advancement may take away that economic potential in a similar fashion. The technologies that shape the materialities of gas are changing, and not in Tanzania's favour. The perception of gas as a mineral, rather than energy has meant that it is perceived as something that can wait to be exploited, regardless of the market conditions and technological advances.

4.2 Domestic Pressures

As mentioned previously in this chapter, considering the fact that EACOP is a project to transport Ugandan crude, there is little the Tanzanian government can do to aid the resolution of the dispute between the government of Uganda and the IOCs operating in Lake Albert. Whilst there are domestic pressures to pursue EACOP, as will be shown in the next chapter, these pressures are more on the distribution of tenders and local content initiatives. There is also the ESIA to consider; the ESIA on the Ugandan portion of the pipeline has not been well received, with Ugandan NGOs criticising the report for legal and methodological issues (Observer, 2019b; Daily Monitor, 2019). Nevertheless, as shown in the subsection above, the majority of the issues facing the EACOP project are outside of the control of the Tanzanian government.

Central to the challenges of the LNG project is the conflicting long-term imaginaries of the natural gas itself. The Ministry of Energy and Minerals and TPDC employees commented on the materiality and static geography of the gas, whereby it is still in the ground, and therefore there is little concern to with the pause in developments:

> 'It is a process; we have to be patient. It is difficult to manage, and we have to manage expectations. We're moving slow, slow but sure. On most occasions, we are not happy with the progress. We could take this at a high speed but then we could be a loser. We have to make sure that the terms are right. We give room to make opinions, but the IOCs are not happy. They are not giving room. These are our resources; can we rush it? We need to optimise the government take. We can go at high speed but at the end of the day, we lose!'[193]

In essence, this viewpoint could be seen as the fact that the gas is not going anywhere, so why rush development and, in the viewpoint of the government, get a bad deal? What is striking is that many of these comments from government technocrats were uniform, suggesting there is some long-term strategy to ensure that the government does not feel cheated in hydrocarbon negotiations. This fits into the rhetoric of Magufuli's

[193] Senior State Executive 2 Interview.

administration, one that has sought to be tougher on MNCs in many sectors after the more liberal years of Kikwete.

For a number of senior Tanzanian technocrats working in the sector, the reasoning behind the slow advancement has been twofold; firstly, there has been an indirect impact on the research the 'resource curse' has had on the process. A variety of interviewees have claimed that the poor experience of managing hydrocarbon revenues by other African states has been a contributing factor in the process to ensure that the negative aspects of the resource curse could be countered. Secondly, discussions with senior IOC officials presented a pattern of long-term thinking with regards to the hydrocarbons themselves:

> 'An Omani oil and gas consultant once told me: never hurry with energy, energy will be needed in fifty to a hundred years' time, you don't want to be laughed at with the deals.'[194]

> 'As the gas sector is concerned – we still have it. I hold the thought that these hydrocarbons are there and they're not going anywhere. There should be no pressure to say 'Hey this let's extract today. You know I want to be there tomorrow. So, we should not feel the pressure to move very fast, but we should feel the pressure to put our house in order. You should not be too hasty to mess up the insistent value. This first foot forward is very critical, and this first foot forward is the readiness in terms of human capacity institutional capacity.'[195]

As mentioned above, there is a perception of utilising gas as a mineral rather than an energy source. The statements above encapsulate this mindset. In this respect, one can see the strategy behind ensuring benefits from gas; gas is not renewable, so therefore there is a single chance to benefit from hydrocarbon extraction and associated infrastructure. The LNG project is paramount to this, and therefore the government has sought to ensure a comfortable pace of progression.

Domestic pressures and contrasting cycles have been behind the lack of progress in the LNG plant. As stated in the previous sub-section, the market pressures to pursue an LNG plant are becoming increasingly difficult due to technological change in the gas sector and changing exporters due to this change in technology. Beyond the new laws affecting negotiations, central to the lack of progression of the LNG plant has been contrasting time horizons between the government and the IOCs (and, as shown before, contrasting time-horizons between the IOCs themselves). Although Tanzania currently has a large number of infrastructure projects both in the planning and construction stage (e.g., Economist, 2019; Tanzania Daily News, 2020), these projects are chiefly focused on improving domestic

[194] Interview, Acting Managing Director, TPDC, Dar es Salaam, 26.03.2018.
[195] CCM MP Interview.

infrastructure rather than international export. The focus on other projects was not lost on officials with an interest in the sector:

> 'Nothing has moved, main reasons for this are that the government has not prioritised the LNG project and there is poor government support in the sector. They instead are looking to implement other projects.'[196]

> 'There is no sponsor of the project on the government's side, nobody with a drive and passion for the project. Nobody has a personal stake in the project, so nobody cares, there is no political gain for anybody. [The LNG project] can't be done in one presidential term'[197]

The lack of sponsor on the governments side is best reflected by the lack of a full-time negotiating team on the project, as well as the slow progression of the project overall. While this has been a common complaint by IOCs, there is also a political reason behind the lack of progression on the project: leadership terms and election cycles.

For IOC personnel interviewed, one of the biggest obstacles for the progression of the project had been the timescale of the project itself and how it interacts with other cycles, in particular the international commodities cycle and the national electoral cycle. In this respect, due to the long-term nature of LNG construction and investment, combined with the low prospect of considerable local content, there is a lack of short-term political capital to be gained from pushing forward the LNG project. Furthermore, the project carries political risks for the government; with the current discourse of blaming previous governments for getting, in their viewpoint, 'poor deals', the government is putting itself in a 'safe position', as 'if the government makes a mistake, that means Tanzania loses out'.[198] This long term view to ensure the project moves slowly to make sure that no perceived mistakes are made are combined with the electoral cycle; with general elections in Tanzania occurring every five years, issues with the extractive sector have been prominent in both 2010 and 2015 general elections (Jacob and Pedersen, 2018).

The LNG project, with up to eight years of construction, does not allow for considerable political capital within one presidential term. While this project offers a considerable sum of capital investment for the country, it does not offer the jobs and development opportunities that have been advertised alongside other infrastructure projects. It is telling that the EACOP project has received greater public interest, despite offering roughly a tenth of the investment. The largest concern with two of the IOCs

[196] Oil and Gas Bank Executives Interview.
[197] Senior IOC Executive 4 Interview.
[198] Planning Officer Interview.

personnel interviewed was the lack of engagement the LNG project lifecycle has with the national political cycles:

> 'The political cycle in Tanzania is five years. We need someone who is willing to take a 10/15/20 year focus, in order to organise the people and resources required to take you from discovery to first gas. Most of the discoveries were found during the previous president's Kikwete's second term. The last major discovery was in 2014, by that time there was enough gas to justify an LNG plant. But up until the time he was leaving office in 2015, he had not been able to stop negotiations on partial terms in order to move the project through to development.'[199]

> 'If the LNG project fitted comfortably into the political cycle then it would have been finalised already.'[200]

The long-term nature of the project that does not guarantee short term gains within a singular presidential term has been a large contributing factor to the stalling of the project. This short to medium term mindset behind the government was acknowledged by one MP who stated that 'We are a young nation, we think in terms of administrations: we have 10 years, if we are lucky, we'll be back in power in 10 years.'[201]

This contrast highlights frictions within the government over long term imaginaries of gas development and short-term political demands. In limiting the perception of time within administrations, such a project planning would have to run smoothly throughout to ensure that the project could be completed on time. Due to the legislative changes in the sector combined with the PSA investigations, as well as declining trust between parties and differing time horizons between IOCs, such progression has been difficult.

5 Conclusion

This chapter has sought to understand the temporalities of extractive infrastructure projects and how the temporalities have interacted with different actors. As the chapter demonstrates, there are frictions between both the state and IOCs, and between the IOCs themselves over the direction, and therefore the future, of the projects. Both EACOP and the LNG project share similarities and differences, but ultimately, they have both resulted in delays around the same conjuncture: the HGA. At the surface, this appears to be a surprise, both projects will bring in billions of dollars of investment for construction, as well as further income in the form of LNG export and oil tariffs. The scale of investment would suggest that

[199] Senior IOC Engineer Interview.
[200] Senior IOC Executive 4 Interview.
[201] CCM MP Interview. Note that there is an assumption that Magufuli will win the 2020 election.

both projects will be a priority for the government and would look to be fast tracked. Despite Magufuli's calls for the pace of both projects to increase, this has not happened.

EACOP highlights how, in certain respects, hydrocarbon infrastructure projects are outside of the power of the state. With Tanzania not supplying the oil required for the pipeline, the progression of the project rests on the negotiations between the government of Uganda and the IOCs present in Lake Albert. The tax dispute between the government and Total and Tullow have hampered the midstream operations and have been further exacerbated by projected oil price forecasts for the short to medium term.

The LNG project, on the other hand, has been in a negotiation purgatory of sorts. Like EACOP, land was quickly seized, although the project has not been finalised. The long-term nature of the project has worked against its progression. In this respect, the perceived lack of political will in the country is caused by the political cycle; the absence of electoral gains by the LNG plant project within one political cycle in Tanzania has ensured that there is little short-term political gain for the project, leaving LNG in limbo.

This is compounded by the general level of distrust between IOCs and the current administration. The conflicting interests of the government, market demands, project timescales, IOCs ambitions and the governments priorities has resulted in friction. A core reason for the lack of advancement of the LNG project has been competing strategies and projected futures of what benefit the LNG can provide. For the Tanzanian government, the LNG project is not viewed solely as a mechanism for export, but also an infrastructure to supply gas for domestic development. This is in contrast with IOC strategies to utilise natural gas to supply LNG for the growing Asian market. However, the IOC actors of the LNG group are not monolithic, and they themselves have differing strategies and priorities over the LNG project. Chief among these is between two of the largest IOCs involved in Tanzania: Shell and Equinor. Shell has wanted to combat the resource laws to ensure they do not disrupt the project, while Equinor has sought to quicken the pace of the project and is now in the process of negotiating a smaller LNG project that could both satisfy domestic concerns for the government and Equinor's wider objectives.

The cause of this is different expectations of the future. Corporate drivers, such as market forecasts, have made both the Ugandan oil sector and the Tanzanian offshore gas sector less of an economic prospect than it was during the initial discovery. This is combined with an uncertain hydrocarbon market, which has made large scale infrastructure investments in an area not associated with energy a high risk. Combined with this is a

declining reward; the push of resource nationalist policies in Tanzania and Uganda has provided additional pressures on IOCs to fight these legal changes, often threatening to leave if they apply to them. Hence, for IOCs, the expectations of the future of the East African hydrocarbon sector are less than they were during initial discovery, and strategies between the IOCs themselves have diverged over the pace and progression of the project.

While certain aspects of the government have worked well with extractive temporalities, such as obtaining land. The desire to obtain greater fiscal benefits has resulted in a pause. While on paper both projects are still going ahead, technological advancement in shale gas, as well as continuing market forecasts which suggest that hydrocarbon prices will be relatively mild in the upcoming decade, suggest that the chief driver of exploration in the region, future market prices, may in turn result in disinterest by IOCs in the present.

Chapter VII: The Politics of the Temporary: Local Content in the East African Crude Oil Pipeline

1 Introduction

In April 2016, the Ugandan government announced that Tanzania was to be the chosen route to export Ugandan crude oil, beating two potential Kenyan routes in the process (Daily Monitor, 2016). This route will take oil from its source in Hoima, Uganda to the Tanzanian port of Tanga (Figure 14). While this had wider political ramifications for the East African region, it also provided the catalyst for improved local content regulations and to encourage Tanzanian businesses to enter the hydrocarbon supply-side sector. Since the announcement of the Tanzanian route, there has been a marked increase in interest over participating in the EACOP project in both countries (Daily Monitor, 2018; The Citizen, 2018d).

As mentioned in the introduction of this thesis, EACOP is now its own registered company, although ownership of the project is divided between five partners. The first two are the NOCs of the nations which the pipeline passes, Uganda, and Tanzania. These are the

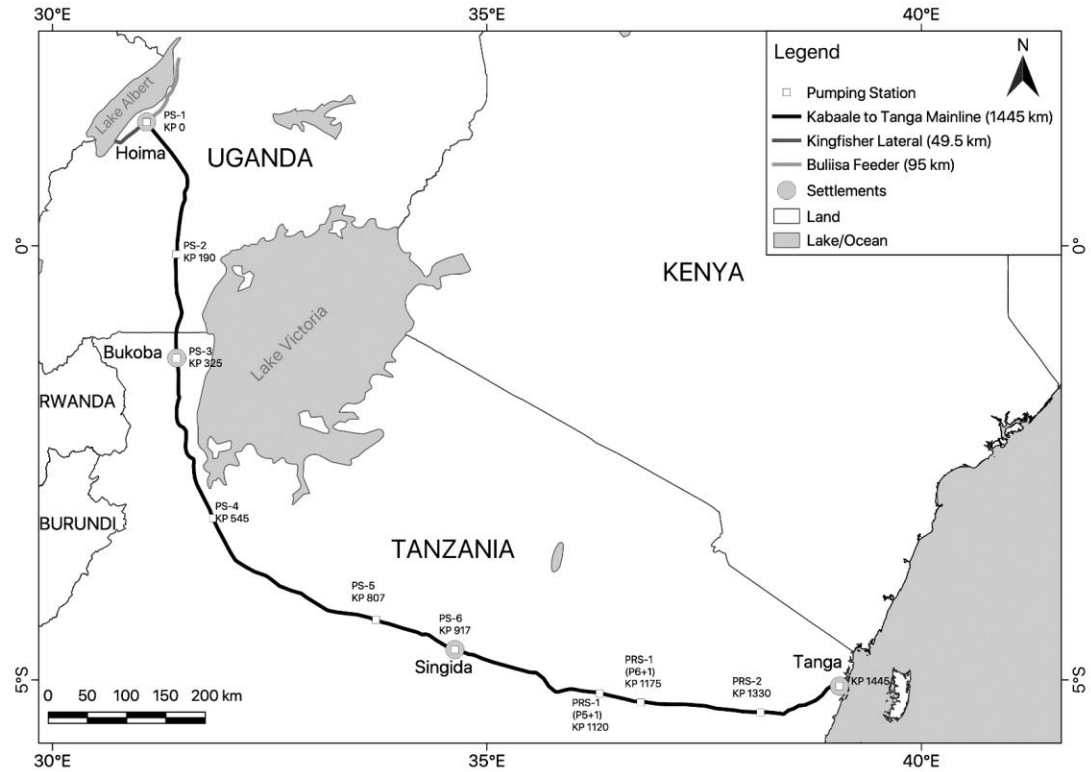

Figure 14: EACOP Pipeline Route.

Ugandan National Oil Corporation and TPDC, respectively. The other three partners of the project are IOCs currently operating in exploration and production of Uganda's oilfield in Lake Albert: The French Supermajor Total, the Anglo-Irish medium sized oil company Tullow Oil and the Chinese National Offshore Oil Corporation, owned by the People's Republic of China.

Project management for the whole of the pipeline is being handled by employees seconded by Total, with NOCs aiding the project in terms of legal and technical support within their respective borders. Unlike similar large-scale infrastructure projects on the continent (e.g., the Chad-Cameroon pipeline, see Pegg, 2006), there is no funding coming the Bretton Woods institutions or the Chinese government or their respective state-owned enterprises. Rather the project is being financed through bank loans. Although these loans have yet to be finalised, the joint arranger and advisor for the funding of the project is Stanbic Bank Uganda and Japan's Sumitomo Mitsui Banking Corporation (The East African, 2018b).

As mentioned in the previous chapter, despite the initial optimism over the project, and the public announcement by Magufuli that the project should be 'fast tracked' (Tanzania Daily News, 2017), EACOP is currently being delayed. While it was originally planned for completion in 2020, in time for commercial oil extraction of Lake Albert (EACOP, 2017). Risk assessments included local content as a minor potential threat to the delaying of the project (Assaye Risk, 2019). While the IGA was signed in 2017, stalled discussions for the HGA between the two nations and the IOCs involved in the project combined with FID delays have both been seen as the major contributors to the overall delay of the project (Assaye Risk, 2019).

This chapter focuses on the temporalities of local content policies in the EACOP project. Since the announcement of the Tanzanian route, there has been a marked increase in interest over participating in the EACOP project in both countries. Interest in local content has both been within the private sector and the wider public. However, this interest has highlighted conflicting temporalities on different spatial scales, all of which have had an impact on the project. It is the role of this chapter to unpack these frictions and uncover some of the various forms of temporality that have influenced Tanzania's local content policy on EACOP.

While the pipeline has served to catalyse local content at a national level, this has been focused on businesses and industries based in Dar es Salaam, rather than local communities and population centres closest to the pipeline route. While the Tanzanian route contains no extraction or transport of Tanzanian hydrocarbons, it is central to the government's local

content strategy for the extractives sector. Interest has been both in the domestic private sector and within the general public, either as a worker or as a contractor. It is worth noting that local content can be a broad term, ensuring both skilled and unskilled employment, but also supply-side services to the hydrocarbon sector which can include both technical and non-technical services. Tanzania's local content policy seeks to ensure both, and this chapter will focus both on the focus on employment and on encouraging businesses to successfully enter the supply chain on the project.

This chapter seeks to contribute to the thesis by exploring the role temporalities have in the political economy of extractive industrial policy, in this case local content on a major pipeline project. EACOP was chosen as the case study due to the fact that the Tanzanian government and Total have used this project as an experiment in local content, and the fact that the project promises an enormous amount of capital to be invested in Tanzania and Uganda over a short period of time. This creates an interesting set of temporalities which have influenced actors seeking to enter the supply chain of the project.

This chapter is structured as follows: Firstly, it will explore the background of local content policies in Tanzania. It will chart how the movement towards local content policies on the continent have influenced Tanzanian local content, as well as the country's previous attempts to install a successful local content policy within its domestic extractive sectors. It will then focus on the EACOP project itself, highlighting how the project has provided the catalyst for updates in local content policies in the country. After this, it will move onto the politics of urgencies that have emerged out of Tanzanian local content policy, exploring the contrasting politics of urgencies that different actors have undertaken and arguing that the creation of a politics of urgency in local content has benefited those with the capital and the connections to seize opportunities quickly. Following on from this, the chapter will take a greater focus on local content policies in Tanga, highlighting the differentiation of local content application between the economic core and periphery of the country, and showcasing the different paces of local content implementation across geographic space. The concluding section will round up the information on different temporalities in the previous sections for a greater understanding of the unique temporalities of local content and EACOP.

2 Local Content Implementation in Tanzania

Considering the small size of the onshore gas industry, and the paused status of the offshore sector, there has been considerable research into Tanzanian local content policies

in the petroleum sector. Some of the current research has explored how previous experiences in the mining sector have shaped local content in the petroleum sector (Lange and Kinyondo, 2016); stakeholder's hopes and scepticism with current local content policies (Kinyondo and Villanger, 2017; Kolstad and Kinyondo, 2017); the elite level politics behind local content implementation (Hansen *et al,* 2016); and preparation by local businesses for the arrival of the sector (Anderson, 2016; Calingnano and Vaaland, 2017; 2018). Much of this is due to that fact that there has been great anticipation for the policies and legal changes.

Recent research has explored the relationship between the government and its engagement with local communities (e.g., Kamat *et al,* 2019; Poncian and Jose, 2019). Local content, like the rest of the extractive sector in Tanzania, is at the direction of the state, rather than local communities, and this has had a harmful impact (Poncian, 2019c). With this centralisation, there is little community participation in the local content decision making process (Poncian, 2019c). Despite this, the government's engagement with the wider industry has proved to be an electoral calculation as much as an economic one, with local content being a part of a package of resource nationalist policies that have proved to be popular (Jacob and Pedersen, 2018; Poncian, 2019b). Local content thus is an important political tool in Tanzania as well as a developmental one. As this section will show, application of local content has proved to be frustrating in both the mining and the gas sector. In this respect, the introduction of EACOP has been seen as a project that could reinvigorate a Tanzanian local content policy that could then be applied to other sectors, particularly the gas sector.

2.1 Legislating Local Content in Tanzania

In Tanzania, local content policies can be traced back to the history of the mining sector, and in particular, the gold mining sector. During the time of *Ujamaa,* while legislation to ensure local participation was in place, the mining sector lacked foreign investment and was dominated by artisanal and small-scale mining (Emel *et al*, 2011). By the time structural adjustment policies were enacted in the 1980s and 1990s, one of the conditionalities were the removal of what would today be classed as local content policies within legal frameworks. The gold mining sector has been contentious in the country and contributed to dissatisfaction within the local communities over the way both the state and mining companies have acted (Lange, 2011; Carstens and Hilson, 2009).

The (often negative) experiences of the mining sector and the lack of local involvement in the gold sector during the era of structural adjustment greatly influenced the

Tanzanian gas sector. Many in the business community and the government saw the gas industry as another chance to enact local content correctly. Reginald Mengi, the former chairperson of the Tanzanian Private Sector Foundation (TPSF) claimed that:

> 'Tanzania should not now shy away from this golden opportunity which will wipe our years of agony caused by the mining sector in this country. We have been blessed with a second chance and let us fully utilize it to create sustainable local participation that will benefit future generations. (Mengi, 2013, cited in Lange and Kinyondo, 2016: 1102).

This 'second chance' for local content in the gas sector has not been successful. While community relations between the multinational corporations and local communities lack the animosity experienced in the mining sector, local content in the gas sector has been low, with complaints that IOCs have not been hiring Tanzanians or skirting regulations commonplace (Kinyondo and Villanger, 2017). This is partially due to the fact that preparations by the Tanzanian government were slow to enact local content policies. Alongside this is the fact that all local content provisions were enshrined in PSAs with IOCs and therefore varied between companies and kept secret. Furthermore, not all PSAs contained local content provisions, with 90% of PSAs having some sort of local content.[202]

In 2014, four years after the deep-sea exploration had begun in the country, a draft local content policy outlined much of the policy goals of local content (GoT, 2014b). Unusual for a local content policy, and unlike the definitions stated in the literature review, it defines the 'local' in local content, characterizing it as 'the Tanzania mainland and its people' (GoT, 2014b: iii).[203] This should not come as a surprise, as the Tanzanian state views natural resources as national resources, with no special treatment for communities located within close proximity of the extractive site. Such a policy has resulted in rising community tensions in the past (Lange, 2011; Ahearne and Childs, 2018; Must, 2018). This draft policy was one of the 'least rigorous' in Sub-Saharan Africa, with the requirements 'vague enough to be almost voluntary' (Ovadia, 2016a: 27-28).

The 2015 Petroleum Act (GoT, 2015d) made major changes in local content requirements and oversight. It split the oversight and promotion of local content between the newly formed PURA, which supervised the upstream sector, and EWURA, supervising the mid- and downstream sector (GoT, 2015d). TPDC also plays a role in drafting and implementing local

[202] Group Interview, State Local Content Coordinators (Group Interview), Dar es Salaam, 22.03.2018. The exception to this is the partially leaked PSA between the government and Equinor in 2014 (Manley and Lassourd, 2014).
[203] Zanzibar have their own resource legislation and will not be included in this analysis.

content policies. However, it is questionable whether TPDC can undertake this role (Melyoki, 2017). The act called for a more aggressive indigenisation approach by promoting domestic capital interests and imposing stringent local content requirements (Jacob and Pedersen, 2018). Despite this, Lange and Kinyondo (2016) contend that the 2015 legislation was relatively 'soft' out of fear of losing investors. This would change in 2017.

Alongside the Petroleum Act, there are a variety of wide-ranging legislation that impacts local content implementation. In 2011, the government passed the public procurement act (GoT, 2011c). This act encouraged the separation of contracts to increase local participation. In the same year as the petroleum act, the government passed the non-citizens act, which ensured that any company employing foreign nationals will come up with succession plans to train Tanzanian nationals for the eventual replacement of the foreign worker (GoT, 2015c). This act covered all sectors of the economy, not just the extractives sector. These acts scratch the surface of the considerable amount of legislation towards both the supervision and enactment of local content policies in the extractives sector (see Scurfield *et al*, 2017; Ovadia, 2019). Implementation and participation are still essential for the success of any policy. In this respect, there has been little progress of Tanzanian businesses entering the hydrocarbon supply chain. Despite the legal requirements for international firms to partner with local firms, current uptake on joint ventures has been low (Calignano and Vaaland, 2017; 2018). However, some of the lack of progress of the policies can be attributed to the lack of overall progress in the hydrocarbon sector.

In 2017, the government passed the Petroleum (Local Content) Regulations act (GoT, 2017b). Unlike previous legislation, the 2017 local content regulations came with substantive quotas as well as strong demands on IOCs for the provision of local content. While this legislation does not affect current PSAs in the upstream sector, the Natural Resources and Contracts Act 2017 allows for the renegotiation of PSAs if the terms are considered 'unconscionable' (GoT, 2017d). Tanzania's own experiences of the difficulties of implementing local content, alongside other countries experience from a multitude of differing developing countries, have served as inspirations, and contributed to the construction and passing of the 2017 local content regulations. Because of this legislation, as well as the EACOP project, the demand for local content has risen even further within both the business elites and the local communities situated near the pipeline. Unlike previous legislation, the 2017 local content regulations came with substantive quotas (Table 8 and 9), as well as strong demands on IOCs for the provision of local content (GoT, 2017b).

Upstream			
Staff Type	**Start**	**5 Years**	**10 Years**
Management Staff	10%	15%	25%
Supervisory Staff	15%	25%	40%
Technical Core Staff	15%	30%	50%
Professional Support Staff	30%	40%	60%
Semi-Skilled	50%	60%	80%
Unskilled	100%	100%	100%

Table 8: Local Content Timetable for the Upstream Sector (GoT, 2017b).

Midstream and Downstream			
Staff Type	**Start**	**5 Years**	**10 Years**
Management Staff	15%	30%	50%
Supervisory Staff	25%	40%	60%
Technical Core Staff	30%	50%	70%
Professional Support Staff	50%	60%	80%
Semi-Skilled	70%	90%	100%
Unskilled	100%	100%	100%

Table 9: Local Content Timetable for the Midstream and Downstream Sector (GoT, 2017b).

As one can see from tables 8 and 9, the local content targets are ambitious in nature. Interviews with bureaucrats tasked with the writing of the new law suggested that the quotas above, with the timescales set, would be unachievable.[204] However, as it will be shown, the EACOP project has advertised that it will follow the mid- and downstream targets set by the legislation.

While quotas suggest that direct employment is the goal of the new local content law, the reality is that there has been a shift away from direct local content, to a 'multi-sectoral' local content strategy.[205] This is where focus is shifted to enhancing supply sectors such as agriculture, construction and services in the goal to raise entire sectors and businesses to international standards, either for further supply-side projects in the extractive industries, or to aid the wider development of the country.

Local content in Tanzania has been 'hampered by inconsistency, confusion and under-coordinated donor interventions.' (Ovadia, 2019: 81). Oversight of local content has seen

[204] Interview, State Lawyer 2, Dar es Salaam, 19.03.2018.
[205] Interview, State Local Content Coordinator (Single Interview), Dar es Salaam, 18.04.2018.

overlapping mandates of various institutions. Alongside TPDC, PURA and EWURA mentioned above, the Ministry of Energy and the National Economic Empowerment Council (NEEC) all have some oversight of local content, leading to questions to how the different institutions will coordinate local content initiatives (Scurfield *et al*, 2017). TPDC, EWURA, the Ministry of Energy and NEEC have all have some form of oversight of local content on EACOP.

Not all of the legislation above is directly linked to the project. However, they highlight the ongoing attempt by the Tanzanian government to obtain greater linkages towards the extractives industry, progressing to 'harder' forms of local content due to the lack of success of previous iterations. With the ongoing legal issues around the gold industry, and the lack of progress from exploration to development in the offshore gas sector, EACOP has presented an opportunity to obtain skills, expertise, and capital from the hydrocarbon industry, despite the project not transporting any Tanzanian hydrocarbons.

3 Local Content and EACOP

Given that the gas industry presented a supposed 'second chance' for local content, the announcement of EACOP has presented a short-term 'third chance' for Tanzania to establish a successful local content policy. EACOP's local content strategy has been seen as an experiment both for the government and for IOCs; for the government of Tanzania, EACOP has provided the catalyst to encourage Tanzanian businesses to enter the hydrocarbon supply-side sector. The goal is to establish a sector that can then be applied to the wider Tanzanian gas industry in Mtwara and to help sectors develop and compete both regionally and nationally both inside and out of the extractives sector.[206] For IOC partners, this project is being used as an experiment to apply to other projects in the future and to be used as a selling point to obtain tenders on other hydrocarbon infrastructure projects across the globe.[207] The legal dimensions of the project will be in the HGA, including local content requirements.[208] However, the 2017 local content legislation has had some influence on local content implementation in the project; EACOP has advertised its own quotas for different levels of staff (Table 10). These current quotas match the 2017 legislative quotas for the mid- and downstream sector (Table 9).

[206] State Local Content Coordinator Interview.
[207] Interview, IOC Local Content Coordinator, EACOP, Dar es Salaam, 12.03.2018.
[208] Senior IOC Executive 2 Interview.

EACOP Local Content Plan			
Minimum % of Tanzanian Citizens		Year 0	Year 5
Management Staff	Management Staff	15%	30%
	Supervisory Staff	25%	40%
Technical Staff	Technical Core Staff	30%	50%
	Professional Support Staff	50%	60%
Other Staff	Semi-Skilled	70%	90%
	Unskilled	100%	100%

Table 10: EACOP Local Content Timetable (EACOP, 2018a).

Much of the work pre-construction constitutes technical work that requires expertise and experience of projects on a large scale that Tanzanian companies lack. These surveys and assessments pre-construction have unsurprisingly gone to MNCs. For unskilled labour, it is expected that Total and associated contractors will hire people from local communities across the pipeline route for temporary employment, while for semi-skilled and skilled labour it is expected that Tanzanians with the relevant qualifications and experience will undertake those roles.[209]

The construction phase contains the largest amount of employment and supply opportunities to Tanzanians, with an estimated 30,000 skilled, semi-, and unskilled jobs available during the height of the construction phase (The Citizen, 2018d). This figure is just an estimate and includes indirect employment from supply services rather than direct employment from EACOP itself. For unskilled labour, it is expected that EACOP and associated contractors will hire people from local communities across the pipeline route for temporary employment, while for semi-skilled and skilled labour it is expected that Tanzanians with the relevant qualifications and experience will undertake those roles, although there is no guarantee that this will happen.

Direct employment and tenders on the pipeline post-construction are largely technical in nature, with limited unskilled and non-technical jobs post-construction. There are only an estimated 1,000 direct jobs available post-construction, with most of these in skilled labour positions. In this respect, the long-term developmental impact on the immediate areas is minimal, with most of the employment going to more technical aspects of the pipeline and the majority of these jobs will most likely be undertaken by foreigners, or

[209] IOC Local Content Coordinator Interview.

Tanzanian urban professionals. Thus, the opportunity for wider development, both locally and nationally, rests in a small timeframe.

Hence, while EACOP has published a quantitative local content plan, the figures only tell half the story; while the five-year plan seeks to increase the number of Tanzanian citizens directly employed at all job scales, these jobs that will be on offer will be in the post-construction phase of the project. In this phase, the jobs that are available are lopsided towards more senior and technical roles. The timeline of the project has large discrepancies within the number of jobs available during the specific phases, and this has an impact on the application for local content on the project.

This has led to the question whether EACOP will ensure that it will be third time lucky for Tanzania's local content efforts. At the time of writing, this project has yet to enter the construction phase. Nevertheless, there has been a large degree of planning within the government for the upcoming project. Furthermore, throughout 2017 and 2018, local content for the pipeline has been heavily advertised by the government within English and Swahili newspapers, much to the frustration of Total employees.[210] Both private and public sector actors see local content on this project as an experiment, albeit with different aims and goals.

For the government of Tanzania, EACOP has provided the catalyst to encourage Tanzanian businesses to enter the hydrocarbon supply-side sector and to update laws and policies, which culminated in the petroleum local content regulations in 2017. The goal is to establish a sector that can then be applied to the wider Tanzanian gas industry in Mtwara and to help distinct sectors such as construction and service sectors to develop and compete both regionally and nationally. Within the business elites of Tanzania, umbrella local content organisations such as the Association of Tanzania Oil and Gas Service Providers (ATOGS) have formed to obtain tenders, as well as the TPSF promoting the potential for skills and business development in the project (The Citizen, 2018f). This has expanded public expectations further.

For Total, it has sought to use this project as an experiment for local content policies as a framework to apply to other projects in the future. The main goal for Total in regard to local content and EACOP is to be used as a selling point to obtain tenders on other

[210] Field Notes, Dar es Salaam, 12.03.2018.

hydrocarbon infrastructure projects across the globe, particularly during a time of increased local content legislation.

As chapter six highlighted, the original timeframe predicted completion of the project in 2020, but it has been pushed back to 2022 at the earliest. Therefore, the project phases have large disreprencies within the number of jobs available during the specific phases, and this has an impact in the application for local content on the project. The construction phase contains the largest amount of employment and supply opportunities to Tanzanians, with an estimated 30,000 skilled, semi-, and unskilled jobs available during the height of the construction phase (The Citizen, 2018b).

The structure of local content on the project itself is divided into tiers (Figure 15). Under the 2017 local content legislation, EACOP as a company is not just responsible for the employment and joint ventures of direct contractors, but also the sub-contractors (GoT, 2017b). At one local content workshop, the EACOP representative clarified that the tenders for the upper tiers (tier 2 and 3), will most likely be taken by multinational corporations, but

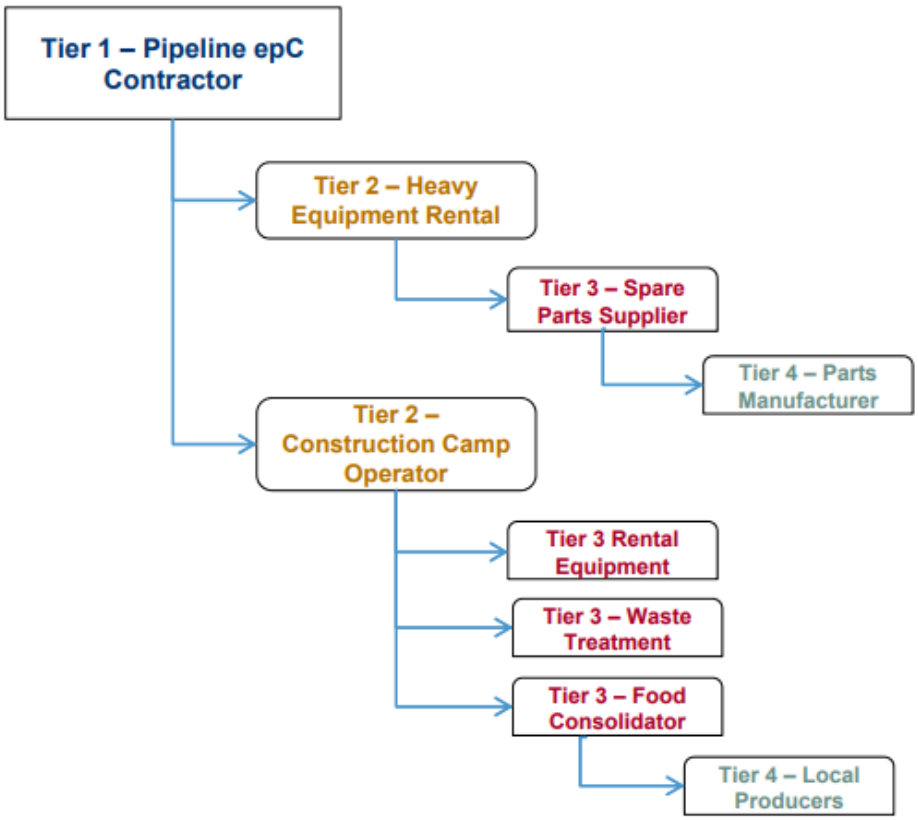

Figure 15: Selected Job Opportunities on the EACOP pipeline (EACOP, 2018b).

these will most likely be subcontracted.[211] Furthermore, the representative was quick to clarify that entering the supply chain on a lower tier does not mean that payment for such tenders will be low, adding that many of the lower tiers do come with a significant financial benefit.[212]

On a long enough timescale, all resource extraction is 'temporary' in the sense in that the resources extracted are non-renewable, and mining and oil and gas extraction projects typically have lifespans measured in decades. However, EACOP has presented a unique project to study the temporalities of local content. With significant sums of money invested in the project, and the possibility of obtaining some capital and technology through local content policies, there appears to be a short term 'window of opportunity' for companies to obtain such capital and expertise, as well as a significant boost to employment and skills training. The government of Tanzania has attempted to utilise this window as a catalyst for longer term development not just of the extractive sector, but also of other sectors, adding potential developmental potential to the Tanzanian economy. This window of opportunity itself has created a sense of urgency to enact local content and to quickly obtain tenders or employment on the project. While longer term aspirations of development are one of the main goals of Tanzanian local content, the policy implementation has been short term in nature, chiefly due to the constructed politics of urgency, of which the next section will now explore.

4 The Politics of Urgency

With the majority of the investment and resulting jobs and tenders available in a short timeframe, EACOP has created an urgency to quickly implement local content policies successfully before or during the construction phase of the project, as many of these opportunities will not come again. However, the desire to use the project to expand local content provisions was secondary to completing the project on time. Hence, for local content, there was not just the narrow construction phase to contend with, but also the reduction in time to prepare and implement local content policies. These two factors created an urgency whereby to prepare a nationwide local content policy and then apply it rested in a considerably shortened timeframe.

[211] Field Notes, Dar es Salaam, 12.12.2017.
[212] Ibid.

Urgency as a form of time has not been well researched in academia. A basic understanding of urgency can be understood as something that requires immediate attention and of being of great importance. Politically, urgencies can be understood as form of pressure used to argue that swift action is required, and that the government is 'being seen to do something', rather than reflecting and planning (Medd and Marvin, 2005: 44). For local content and EACOP in Tanzania, the shortened timeframe created an urgency where the government was seen to be acting on quickly implementing measures to ensure greater participation. However, due to the speed local content was being implemented, this has meant a separation between those with capital and connections, as well as a geographical separation between the economic core and periphery of Tanzania.

4.1 Pressures from Above

Being a cross-border project financed by international capital, there are considerable pressures to ensure a quick completion of the project from IOCs, Uganda, and President Magufuli. This also fits Magufuli's negotiation style as a direct deal maker in the extractive industries (Jacob and Pedersen, 2018). The domestic politics behind such completion of the project should not be underestimated; local content in EACOP 'is something that sounds good politically',[213] and the increase in formal (albeit temporary) employment would political and electoral prospects for CCM. However, this rested on the project being completed on time.

Such an urgency became apparent during interviews with high-ranking technocrats working on the pipeline negotiations. When discussing timeframes for the project, one senior Tanzanian technocrat explained that:

> 'We are working on a tight schedule, which can be risky in terms of project scheduling. We don't have all the time in the world, and we are very much in need to fast track the project. The fast-tracking of the project can be a big risk, but it is a necessary condition that we need to consider. It is certainly trying to mitigate the quality in a short space of time.'[214]

Here one can see one of the core components of the competing urgencies within EACOP. There is an acknowledgement of both the need for speedy implementation of the project combined with the reality that such urgency could be a detriment to wider (albeit secondary) project goals such as local content. On the one hand, there is a desire both by the government and the population at large that Tanzanians should have a greater involvement in the project;

[213] Interview, State Local Content Coordinator 2, Dar es Salaam, 18.04.2018.
[214] State Senior Executive Interview.

both to increase the incomes of Tanzanian workers and local businesses, and to increase the standards and skills of organisations and workforces. This contrasts with the urgency at the highest levels of the Tanzanian and Ugandan government, alongside the IOCs, to complete the project within an acceptable timeframe to aid the logistical challenge to export Ugandan crude oil and to generate revenues for all parties involved.

4.2 Speeding Up Local Content

Alongside temporal pressures to obtain the maximum amount of economic development out of the project in a short timeframe, there was the additional pressure to get local content 'right' after the failures of implementing the policy in the mining and gas industry. In this respect, while there were pressures to get the project completed quickly, there were contrasting pressures to successfully implement local content both quickly and effectively from a variety of domestic actors. The concern of local content provisions being left behind in EACOP was not lost on some politicians with an interest in the sector. There was concern that local content would be left behind. This was best seen with one prominent CCM MP, who was on the Parliamentary Committee for Energy and Minerals, claiming that:

> 'There is a pressure to do the project [EACOP] very quickly. There is also the danger of missing out on some critical things such as local content. When there is a rush, it becomes a complex scenario with deficiencies. Through the committee, my insistence to the government has been with this rush to complete this, also spend a lot of energy and pushing on local content, so that they work together at the same rate of haste and rushing. Make sure that you are going to complete the project up to par with the rate at which we are required to accomplish local content objectives. I'm afraid this project appears to be desired to be completed very quickly, which might mean the quality of local content attainment is low…the unskilled jobs won't be there forever.'[215]

There has been a desire, at least in some political quarters, to ensure that local content is 'sped up' to the same pace of EACOP's implementation. The sense of urgency was not to slow down the project itself, but to increase the pace of local content implementation to ensure that Tanzanian businesses and workforce were suitably prepared for the project to obtain maximum benefit.

This speeding up of the implementation of local content can be seen at the bureaucratic level with the creation of a local content database. The database was created in line with the shift of the responsibility to monitor and regulate local content of the mid- and downstream sectors in 2015 (GoT, 2015d), and was enshrined in law in the 2017 local content act (GoT, 2017b). The idea behind the database is that it allows IOCs and other international organisations to see an accessible list of suppliers for various goods and services

[215] CCM MP Interview.

for their local content requirements. Companies on the database would be given priority in obtaining tenders on the project (EACOP, 2018a). EACOP provided a catalyst to implement the database quickly because neither EACOP nor the government knew where potential businesses and workers were.[216] Due to the commercial and industrial dominance of Dar es Salaam, it should come as little surprise that 87% of the companies currently listed on the database are based in the economic capital (EWURA, 2019).[217] Respondents from Tanga often cited the difficulty of the application process, and the lack of help offered from the government and the private sector, as one of the main difficulties to participate on the project.

While the database has allowed for the potential of increased participation in local content initiatives, it has resulted in the geographical centralisation of businesses that have a greater opportunity to participate in the project. The increase of pace in the implementation of local content has allowed for those with the greatest amount of capital, political, and industry connections to organise quickly to try and enter the supply side of the project. In response to the EACOP project, new umbrella organisations to capture local content provisions were formed. One of these organisations currently boasts of members both directly involved in the sector, such as manufacturers and technical services, and organisations seeking for indirect involvement in the sector such as hospitality and catering. Tender information is distributed from the government and EACOP through these umbrella organisations and the TPSF to disseminate the information to their members. These groups also have political connections, with one of the groups officially partnering with the president's office and currently has members of the government and the Governor of the Bank of Tanzania within its board of directors.[218]

Such connections between private and public organisations are not uncommon in Tanzania (Gray, 2013). There are, however, clear barriers to entry to the organisation, which are evident in the membership fees of the organisation; it costs $1000 to join as a member, plus an additional $100 a month for voting privileges.[219] In part due to the capital required, the demographic composition of the organisation is less Tanzanian than you'd expect; having attended one of the member's meetings of the organisation, there were a considerable number of non-Tanzanians present, both white migrant workers that work in senior roles for

[216] IOC Local Content Coordinator Interview.
[217] This is correct as of February 2020 and may be updated at the time of reading.
[218] Interview, Business Senior Executive, Dar es Salaam, 05.12.2017.
[219] Author's notes at an AGM meeting for a local content umbrella organisation, 12th December 2017.

Tanzanian companies, as well as foreign firms, such as Kenyan companies present.[220] In this respect, while the umbrella organisations created due to EACOP have reacted quickly to obtain tenders on the pipeline, they have shut out SMEs from entering the local content process.

Alongside the government, EACOP representatives were keen to emphasise the short-term nature of the project in seminars and workshops organised by them, with job advertisements and brochures all emphasising the short-term nature of the employment offered (EACOP, 2017). There appeared to be a genuine concern over the expectations that the project had:

> 'It's a risk to see when you come to the project and the project is short in nature, and that's it. Some may be unhappy at this, and it is something that has to be raised. We need to maximise everything, with communication between us and communities and the procurement process. There has to be a maximum of understanding [of the temporary nature of the project].'[221]

For EACOP, local content has become an exercise in communication as well as required policy. In some respects, the temporalities of the EACOP project has ensured it is seen as a public relations exercise both to advertise employment opportunities but also to warn that the company will not be in the country beyond the completion of the project, and thus to subdue expectations both in terms of employment and tenders. It was clear, however, that such communication on the temporary nature of the project did not stop the general excitement and expectation for employment and tenders across businesspeople in Dar es Salaam.[222]

One of the core reasons the establishment of local content created friction with the desire to speed up local content implementation was due to that fact that establishing local content that is ready for EACOP takes time. To emphasise this, table 11 highlights a few selected jobs that are required for the EACOP pipeline. This data was provided during an AGM meeting with ATOGS by EACOP:

[220] Author's notes at an AGM meeting for a local content umbrella organisation, 12th December 2017.
[221] IOC Local Content Coordinator Interview.
[222] Author's notes and discussions during AGM meeting for a local content umbrella organisation, 12th December 2017, and local content seminar held in Dar es Salaam on 23rd February 2018.

Job	Educational Background	Certification for Oil and Gas	Minimum Level of Education	Years of Experience	Education Time	Average Time to Minimum Skill Level (w/o experience)
Unskilled Labourer	Not Required	Required	N/A	N/A	N/A	N/A
Building/Structural Erector	Craftsman Certification	Required	O-Level	2 to 5	N/A	0.5 Years
Driver (heavy duty trucks)	Driving Certification (Heavy Duty)	Specific	O-Level	0 to 2	N/A	0.5 Years
Welder	Welder (plate) Certification	Specific	UK3/EU4	2 to 5	2 Years	0.5 Years
Piping Control Engineer	Welder (piping) Certification	Required	Higher Diploma	5 to 10	4 Years	1 Year
Surveyor Engineer	Civil Engineering	Required	Degree	5 to 10	4 Years	1 Year
Civil Foreman	Craftsman Certification	Required	UK3/EU4	10+	2 Years	10+ Years

Table 11: Selected Job Requirements on the EACOP Pipeline (See Appendix B).

Within the table are unskilled, semi-skilled and highly skilled positions that are required for the project. All the jobs shown in the above table are for the construction phase of the project and offer at least 40 jobs at peak manpower. As one can see, the semi-skilled jobs in the construction of the pipeline require at least two to five years' experience, with some jobs, such as welder, requiring further education to work on the pipeline, or the driver of heavy-duty vehicles requiring a special certification to work in the hydrocarbon industry. Furthermore, while unskilled positions are on offer, these are not the majority of jobs that are available in the medium to the long term. Rather, they there are greater opportunities for work for semi-skilled and skilled level of jobs on the pipeline beyond the initial construction (Appendix B).

In this respect, to successfully implement local content policy on the EACOP pipeline, time is required to both train individuals up to the international standards required for the project, but also obtain the experience to participate on the project. This also does not take into consideration the time required to set up the bureaucratic infrastructure to aid local content mechanisms, like the local content database, or the time needed to train and bring VETA up to a standard that it can train those for the semi-skilled jobs available. In this respect, while on the surface the jobs are available, the demands by the project are out of reach for many Tanzanians, and the structures required to boost participation are not up to the required level to train Tanzanians to participate.

EACOP accelerated the implementation of local content, but in doing so, has allowed those with greater connections to obtain a greater opportunity to be involved on the project.

The speed of the construction of umbrella organisations, combined with the bureaucratic hurdles, have shut out many prospective businesses that could enter the project beyond unskilled and semi-skilled labour. In essence, contrasting temporalities between the international and domestic political pressures from above to complete the project in a shortened timescale are incompatible with the political goal and pressure from below to establish sectors that can successfully participate. The temporary nature of the project, and the political gains that can be achieved with local content policies have created a sense of urgency to establish local content as a tool to capture the large amount of capital invested over a short period of time.

5 The Multiple Paces of Preparation

The construction of urgencies in implementing local content policies has been geographically uneven with most of the preparations mentioned concentrated in Dar es Salaam. While it would appear to be logical to prepare areas in close proximity to the pipeline for local content, the reality has been that there has been little preparation for EACOP in these areas both in terms of training and dissemination of aid in obtaining tenders. As this section will demonstrate, there has been a (often geographical) partition of local content between obtaining business tenders and employment, and this has been reflected in the discourse around local content in Tanzania.

5.1 From Local Content to National Content

On the global scale, as mentioned before, the understanding of what is local in local content policies is often ambiguous, but in the case of Tanzania, the local has become synonymous with national employment and businesses. Local content has seen a *de facto* division between 'local' content, also known as 'national content' which focuses on the nation, and 'local-local' content, which looks at the direct impact local content can have for the immediate community.

National content retains much of the characteristics and policies that one would expect from a contemporary local content policy and is primarily used to discuss business participation and more technical and senior employment opportunities. Local-local content, or 'local community content', on the other hand, is often associated with employment opportunities available to communities in the vicinity of the project site and is often associated with unskilled or low-skilled labour. This term has begun to be utilised by private

sector interests such as oil companies (Oguine, 2011) and companies that aid MNCs in implementing local content requirements (Warner, 2007).

EACOP has solidified the separation of local content between these two terms, with the former being used when advertising tenders and presenting local content information at the national and professional level. At the same time, EACOP has defined 'local community content' as 'the part of the Local Content that applies to the local communities in the vicinity of work's site(s) of execution' (EACOP, 2018a), and has seen less preparation when compared to national content.[223]

The separation between local and local-local content has also allowed for a geographical division between the core and the periphery over what local content entails. This was noticeable in interviews with both IOC personnel and Tanzanian technocrats: local content would often mean discussing tenders and opportunities for businesses to enter the hydrocarbon supply chain, while discussions around local-local content would entail (often unskilled) employment for local residents. This was best summed up by one senior Tanzanian technocrat specialising in local content, who stated:

> 'For us, local content is at a national level, not 'local-local'. There is an *implication* that priority will be given to the local community… They [the local community] want to ensure that farms and produce are from the local community, and they don't expect local jobs to be taken from the local community. Tanzania is one nation, one people, and it is not fair to divide. If they want to participate that is great, but they will have to participate nationally' [emphasis added].[224]

The locality of the 'local' in local content has been relegated to a suggestion, with no guarantee to hire those closest to the project. It also emphasises a discourse of national unity that goes into Tanzanian nationalism that does not officially distinguish between tribe, ethnicity, or religion. Such a commitment has also been supported by EACOP.[225]

5.2 Preparation on the Ground

To successfully implement local content policy on the EACOP pipeline, time is required both to train individuals up to the international standards required for the project and to set up the bureaucratic infrastructure to aid local content mechanisms. While there is a discourse of anticipation and preparation for local content on the pipeline route and has

[223] This thesis uses the term 'local-local' content when describing local content closest to the extractive site due to the fact that the term is commonly used in Tanzania while 'local community content' is not.
[224] State Local Content Coordinator Interview.
[225] IOC Local Content Coordinator Interview.

resulted in interest from the general public, this has not been matched with the policy's application. While both the government and EACOP have been adamant of the promise of local content, the resultant differences between local and local-local content has ensured that there is a difference in the urgency of preparation between the core and the periphery.

Preparations by businesses within Dar es Salaam have been far stronger compared to other regions. This is in part due to the fact that Dar es Salaam has greater industrial development and therefore is able to obtain international standards more quickly, but it is also due to the fact that there have been little to no preparation at the local level done by the government. The lack of preparation in the periphery was apparent in Tanga.

While the government has aided the creation of an urgency around local content in Dar es Salaam with seminars, assistance to umbrella organisations and public announcements in an effort to create awareness and preparation, this has not filtered through to areas where the pipeline is passing through:

> 'Not much has been done by the local government to create awareness. Many people don't know the opportunities – for example, farmers didn't know about the standards and requirements needed to sell their goods to IOC's. The standards are not known.'[226]

This lack of preparation is just not in the obtention of tenders, but also the training of skilled and semi-skilled workers on the pipeline. As mentioned before, one of the central tenants of Tanzanian local content policy for EACOP is to use the project to aid in the development of a skilled workforce for the pipeline and to bring up skills to an internationally certified level. Because of this, the Vocational Education Training Authority (VETA) has been modernised to a level that can accommodate the desired skills by IOCs. In Tanga, this has not happened; multiple requests for interviews with both students, teachers and administration staff were rejected on the basis that no preparations had been made for the project.[227] Overall information and knowledge about the project is low, with one participant telling me, 'you're in Tanga to talk about the pipeline – they [the local population] have no idea!'[228]

This lack of preparation in vocational training was noticed by Tanga residents who knew about the demands for certification and experience required to work on the project.[229]

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[226] Interview, NGO Executive, Environmental and Social Responsibility NGO, Tanga, 08.08.2018.
[227] Author's fieldwork notes, 16th August 2018. It is worth noting that this may have been an excuse not to be interviewed. Furthermore, people from across the country can enrol in VETA and people are not limited to their home area for skills training.
[228] Interview, Businessperson, Tanga Chamber of Commerce, Tanga, 07.08.2018.
[229] Interview, Businessperson 4, Tanga, 18.08.2018; Tanga Chamber of Commerce Interview.

The current lack of preparation and training of people with the skills and certification needed has guaranteed that employment at the 'local-local' level cannot occur beyond unskilled labour; to be internationally certified at the level IOCs demand on the pipeline requires months and years of training, and in some cases, on-the-job experience.[230] In this respect, the hiring of local workers beyond unskilled labour has already failed before construction has begun.

The lack of preparations for local content and EACOP in Tanga stands in contrast to Dar es Salaam. Tanga has been relegated to local-local content, with a focus on unskilled labour and little aid to help Tanga SMEs obtain tenders on the project. Rather, there is a geographical separation that has been reflected in the changes of discourse around local content policies. In the case of EACOP, this process has been both temporal and spatial. The preparations that could have aided Tanga SMEs to participate in the project have not been established, reinforcing the perception that the region would just supply un- and low-skilled labour. The one exception appears to be preparation in villages located near the planned jetty, where respondents noted a higher degree of knowledge about the project, and many aspired for both short- and longer-term employment from the pipeline, mainly for unskilled and low-skilled employment.[231]

5.3 'Everything is skewed towards Dar es Salaam': Local Content as a National Project

With the division between national and local-local content, combined with the lack of preparation, there has been considerable frustrations by Tanga SMEs. Central to this was the information asymmetries experienced, which stand in contrast to the urgencies experienced in Dar es Salaam. The networks set up by the Tanzanian government and EACOP for knowledge transfers on obtaining contracts on the project have proved ineffectual for Tanga SMEs. This was in part due to both geography and the network established to distribute information:

> 'The problem with the contracts is that whenever they want to contact people for a meeting, they do it through the TPSF in Dar es Salaam. They do not contact us in Tanga. There is no coordination at all. They don't use it to bring opportunities for the people. There is no delegation. In February 2017 in Dar es Salaam, the TPSF

[230] EACOP business skills requirements. Obtained during AGM meeting for a local content umbrella organisation, 12th December 2017.
[231] Chongoleani Villagers Group Interview 1 and 2.

outlined opportunities. During that meeting, there was a request by us to break down these opportunities. They haven't done that before, and many people don't have the capacity to understand the process.[232]

With local content information being disseminated through umbrella organisations, these organisations hold considerable power in the local content process and hold information that could prove invaluable for businesses entering the supply chain. Much to the frustrations of Tanga SMEs owners interviewed, no umbrella organisation reached out to them to help their businesses enter the supply chain.[233]

These information asymmetries about the process also aided the feeling of exclusion. This manifested itself not just in terms of frustrations at the lack of preparation as shown above, but also in terms of symbolism:

'We have had three meetings in Dar es Salaam, they need to bring these to Tanga. These companies don't see the need for Tanga. Having the meeting here would mean that these people will have great opportunities to see what is going on, great opportunities for the people of Tanga and greater awareness.'[234]

All seminars and workshops on local content and the EACOP project were held in Dar es Salaam, geographically excluding potential SMEs in other regions to participate. At one of these seminars, one Tanga resident put his frustrations bluntly towards local content policies by saying: 'This is not Dar es Salaam content, this is *local* content!'.[235]

Rather than being seen as a project that could enhance development in Tanga, the government's local content policy has instead reinforced a perception that both EACOP and local content is a national and international project with little opportunity for advancement, either for SMEs operating in the region or for local development:

'I have always said local is not local, and I voice concerns at every forum. It's more international than local…We're just bystanders. Maybe we will attach on to a micro-local level, but I don't think there is much of a structure to allow people to grow with the project.'[236]

'The pipeline presents a lot of opportunities, but not for everyone...They talk about 10,000 jobs but we have had no jobs [offered]… At this current moment, this is a project for TPDC, IOC's, and TPSF'[237]

For SME businessowners in Tanga, the current structure of dissemination of information has led the perception that they are excluded from the project. The lack of chance or availability

[232] Tanga Chamber of Commerce Interview.
[233] Businessperson 4 Interview; Tanga Chamber of Commerce; Interview, Businessperson 5, Tanga, 14.08.2018.
[234] Tanga Chamber of Commerce Interview.
[235] Authors notes at a Local Content seminar held in Dar es Salaam on 23rd February 2018.
[236] Businessperson 4 Interview.
[237] Tanga Chamber of Commerce Interview.

of information has caused many of the SME business owners in Tanga to give up on local content on the pipeline and carry on with business as usual, or to try and obtain some of the little spill overs in capital through the purchase of land around the route.[238]

The urgencies around EACOP, combined with the information asymmetries around local content, has allowed businesses within the information network a 'head start'. This has given them a greater opportunity to participate, which was especially important at the time due to the temporary nature of EACOP. In the process of this, it ensured that there could have been little time left for those to catch up. For SMEs in Tanga, this was a spatial practise, with little opportunity for Tanga businesses to participate beyond local-local content.

6 Conclusion

This chapter has sought to unpack some of the spatio-temporalities of local content policies on the EACOP project to present a way to greater incorporate both temporalities and spatialities into analysis of local content. The temporary nature of the project combined with the amount of capital invested into EACOP has created peculiar temporalities in Tanzania's local content policy that establishes itself in different forms geographically. One of the core responses to the project has been a construction of urgencies. It is the urgency of obtaining access to local content information and tenders that have created spatial divides between those with access to the information, and those who do not. Larger local businesses with the capital and expertise to establish themselves quickly have been a driving force behind the urgency, presenting themselves as the go-to organisation for procurement.

Adding to this has been the division of local content between national and local-local content, with the latter being limited in application to semi-skilled and unskilled labour. As shown in Tanga, regional SMEs have been bypassed in local content participation due to the quickness of larger corporations being able to mobilise resources to ensure they are in the best position for the start of the project. This, in turn, has relegated much of the region to just enact 'local-local' content, much to the frustration of SMEs owners interviewed that had been eager to participate. Further lowering the amount of development that can be obtained from the project has been the lack of skills preparation at the regional level; even though in theory local-local content focuses on both skilled and unskilled employment, the reality is that due to the lack of preparation done at the local government level, there appears

[238] Businessperson 5 Interview.

little chance that local residents will have the qualifications nor the training to participate beyond unskilled labour.

The result of these urgencies and local content divisions has been the implementation of local content at multiple paces. At the core, local content has seen a quick implementation both at the bureaucratic level and within national businesses. These businesses have been quick to join umbrella organisations and overcoming bureaucratic hurdles to ensure they are in a prime position to participate. This is in stark contrast with Tanga, with SMEs unable to enter the supply chain due to information asymmetries hindering the potential to be a part of the project. With the project being temporary in nature, time is essential, and those that were unable to quickly mobilise losing out. Nevertheless, the recent suspension of the project raises questions of whether the project itself will go ahead, and if it does, whether this extra time will allow excluded SMEs and regional training programmes to progress to a stage of greater regional participation.

Chapter VIII: Controlling Time: Pacing the Progression of the Upstream Gas Sector

1 Introduction

As mentioned in the introduction to this thesis, the current status of the Tanzanian offshore gas industry is at an impasse. With the planning and appraisal phases of the gas well lifecycle complete, there is supposed to be a transition to the construction and production phase. However, this has not happened, rather the industry has seen considerable delays. The reasons for these delays have been multiple: the depressed price of natural gas since the heights of the global commodity boom has resulted in delayed investment in a multitude of frontier projects across the globe (Andreasson, 2018). For IOC technical personnel in the sector, declining prices in international markets were a common reason for the slowdown in Tanzania.[239] Yet, this does not tell the whole story. For high-ranking IOC executives, the political and legal changes in the sector seen since 2015, and their resulting impacts on negotiations, has been the cause of the deadlock in the sector.[240]

Discussions with state personnel, from senior managers to employees, often emphasised the importance of the country obtaining a 'good deal'. They decried previous agreements signed with MNCs in the gas and the gold sector for the poor fiscal returns obtained from extraction, as well as the social issues that arose near extractive sites. At its core, the discussion over 'good' and 'bad' deals rested on socio-economic factors. A 'bad' deal took many forms, ranging from concerns over enclave development, tied with insufficient domestic labour and business participation in the extractive sector, as well as perceived poor revenues and tax generated from extraction. Much of this came from the countries experience of the gold sector.

This chapter will focus on the attempts by the Tanzanian government and business actors to obtain a greater share of benefits from the gas sector through legal and bureaucratic changes in the gas sector, with legislation that has been described as 'resource nationalism'. In essence, this chapter explores the legal attempts the Tanzanian state has used to obtain, in their view, a 'good deal'. The way the government has done this has been through legal mechanisms to ensure that mistakes made either now, or in the past, can be

[239] IOC Engineer 3 Interview.
[240] Senior IOC Executive 4 Interview; Senior IOC Executive 1 Interview.

rectified in the future. In essence, the government has passed legislation in an attempt to control the timelines of projects, and to reverse mistakes made in the past, to ensure that the country always benefits from extraction.

The legal changes in the Tanzanian gas industry raise questions about the current theories around the causes of increased state involvement. As mentioned in the literature review of this thesis, much of pro-market resource nationalist literature contends that the politics behind oil directly corresponds to boom-and-bust phases of the market; when prices are high, sellers and governments gain leverage over IOCs, with the roles reversed in the case of low oil prices. Other theories have focused on the maturity of the sector. For example, Vernon's OBM explores the changing bargaining relations between the state and international corporations; it argues that while an extractive industry is young, bargaining power is tilted towards international corporations, due to the capital, technology and infrastructure needed to establish the industry. Over time, however, this power shifts to the government as extractive investments and infrastructure mature and become 'hostages' to state interests, particularly in developing countries (Vernon, 1971).

In the case of Tanzania, these theories suggest that the forces of the international market, combined with the fact that essential infrastructure needed to extract, and export gas has not yet been constructed, would suggest that the government would look to pass generous legislation with fiscal incentives in order to attract international investment. Yet the opposite has happened; the government has made considerable legal changes to the sector, first with the petroleum act in 2015 (GoT, 2015d) and then four pieces of resource legislation in 2017. Hence, while global gas prices continue to fall, and the infrastructures planned have not yet been put into place, the government has placed more stringent policies on the gas sector. To better understand why Tanzania has gone against the grain, a greater focus on the temporalities shaped by domestic politics and past experience of natural resource exploitation, alongside international factors, can allow for a better understanding of the drivers of Tanzania's resource nationalist turn.

This chapter will argue that the legal and bureaucratic changes enacted by the government have been done in an effort to control the timing and pace of the sector's development in order to capture a greater share of the economic revenue. This chapter will explore the specific articles in the laws that relate to both the centralisation of resource governance and to utilising time, in this case, the future, to ensure that agreements with IOCs are in Tanzania's favour. Central to this has been the project phasing the offshore sector finds

itself; the sector is currently in between the exploration and construction phase, and the government has seen the negotiations required before the construction phase as the last possible time to guarantee to, in their view, get a 'good deal'. Alongside improving the current and future agreements between the government and IOCs, the extension in time has also been used in an attempt to increase expertise in the industry both through local content and improving bureaucratic capacity in order to properly regulate the sector. However, due to Magufuli's removal of key personnel in a variety of different ministries and parastatals, this has not happened, and instead, has weakened the country's efforts to increase human capital and create a culture whereby decisions are incredibly centralised.

This chapter is structured as follows: first, it will explore the legal changes in the past decade that have been used by the Tanzanian government as an attempt to obtain a greater control of the sector. Central to this has been the attempted control of time through legal mechanisms to ensure that any perceived mistakes of the present can be rectified in the future. It will then explore how the relative inexperience of the Tanzanian state in managing hydrocarbons, both in terms of expectations and governance, has been restructured in preparation for a greater role in the sector. It argues that this attempt at improving the bureaucracy of the sector has been diminished by short term politics of Magufuli's term. Section four concludes.

2 Legal Changes in the Tanzanian Gas Sector

As mentioned in the introduction of this thesis, before the passing of the 2015 Petroleum Act, previous legislative experiences around extractives and bureaucratic and regulatory expertise were centred around the mining industry, as well as the 1980 petroleum act (GoT, 1980). By the time of the offshore discoveries, it was completely outdated and was modelled on the oil sector, rather than gas. Furthermore, this act was written during a time of depressed oil prices in the global market and the introduction of structural adjustment policies, which in general offered generous terms to international corporations and little oversight to their activities across sub-Saharan Africa (e.g., Hilson, 2004; Banchirigah, 2006). Tanzania itself was a participant in these programmes, and an increase of investment in the mining sector was seen as one of the main ways the Tanzanian economy could be better integrated into the global economy (Chachage, 1993; Butler, 2004). The legal changes which started in 2015 would see a dramatic shift away from the neoliberal extractive policies of the 1980s and 1990s.

2.1 Initial Discoveries and Difficulties

As in many countries that have recently discovered hydrocarbon deposits, Tanzania's discovery of exportable quantities of gas in 2010 caused both celebration and promises of development by politicians, who promised an 'economic revolution', powered by business and labour participation in hydrocarbon projects (Bungane, 2016b), and also warnings that such endowments can create the conditions of a 'resource curse' (The Citizen, 2012; Stiglitz, 2012). Discoveries, and signed deals with IOCs during the period of 2010-2014 were conducted at a time where neither the bureaucratic infrastructure nor the legal framework had been reformed to correctly regulate and govern the hydrocarbon sector. In essence, as this sub-section will show, the pace of development of the gas sector on the ground (or in this case, in the deep sea), went at such a pace that the state bureaucracies did not have the required human capital to govern and assist the sector, meanwhile the legislative framework had not been updated to accommodate neither the natural gas sector nor modern developments in the hydrocarbon sector.

To understand the reasoning behind the legal changes of 2015, one must first understand the context in which Tanzania entered the gas sector. One of the lead drivers behind the legal changes in the Tanzanian petroleum sector put forward to me by Tanzanian bureaucrats was the fact that previous hydrocarbon legislation and negotiations occurred during a time where there was little experience, both on the theoretical and practical side of engineering, as well as the business side of the industry, as a whole.[241] This was not just in the Ministry of Energy and Minerals and TPDC, but also the wider bureaucratic structure of the Tanzanian state; hydrocarbon governance requires not just those directly involved in the extraction, but also a range of departments dealing with different aspects of the sector, such as labour and finance.[242] With a considerable number of departments requiring an input in the gas industry, the bureaucratic scope, both in terms of breadth and depth presented a challenge for the Tanzanian government.

During the time of discovery, many analysts, NGOs, and scholars had argued that poor quality institutional frameworks had led natural resources to contribute to a resource curse within developing countries (e.g., Okpanachi and Andrews, 2012; Natural Resource Governance Institute, 2015). Hence, a discourse of 'good governance' and institutional reform as a 'solution' to the resource curse was a particularly resonant discourse for donors and NGOs during the initial discoveries of commercial quantities of natural gas in the late

[241] State Auditor Interview.
[242] Retired Senior TPDC Executive.

2000s and early 2010s. In Tanzania, state development organisations such as Norway's NORAD (2019), Germany's GIZ (2013) and the UK's DFID (2014a) all ran some form of programme to aid the country to prepare for the industry. This was alongside other international organisations, such as the African Development Bank (2017) and the Commonwealth of Nations, which aided in PSA drafts, financial modelling, and training.[243]

Development of human capital takes time. It takes time both to educate, establish and gain experience within a sector that is newly introduced to a country. Since little hydrocarbon exploration had taken place throughout the history of Tanzania, TPDC lacked the technical and business acumen required for a national oil company. Before 2010, TPDC was seen more as a promoter for exploration, rather than a direct actor in the exploration and production of hydrocarbons (Pedersen *et al*, 2020). Hence, the discovery of gas meant that the purpose of TDPC had to change, and new personnel and expertise was required to aid the country's efforts in building human capacity to both participate in the sector, as well as manage the projected revenues that were expected at the time. One interviewee, who was one of the first recipients of the local content process for the gas industry, highlighted the minimal level of preparation the government had for the sector:

> 'We were taken from the mining geology course at the University of Dar es Salaam. There were no skill levels or working culture when we started. The government was not ready for the gas. The institutions and skills programmes were incorrect, and there was not enough teachers or professors. The people running the skills programmes for the IOCs did not know what the companies wanted. The universities did not have any programmes for oil and gas. Us students were not ready to do the job, with little practical experience offered by the University of Dar es Salaam.'[244]

Tanzanian engineers noted a large gap in knowledge and expertise between them and their IOC counterparts during initial discoveries. With the pace of the gas industry during time going at a high speed, it appears that investment in human resources was going to have to accelerate to be at a standard to participate in the industry. The speed and movement of the industry did not allow this to happen; as stated before, gaining education, skills and expertise requires time. While there was some form of knowledge and skills within TDPC and other ministries, these dwarfed in comparison to the knowledge and skills of IOCs. At the core of this was information asymmetry between the government and the IOCs operating in Tanzania. The fast pace exacerbated this, as within the space of four years, Tanzania's

[243] Ibid.
[244] IOC Engineer 1 Interview.

hydrocarbon potential changed from an unknown variable to a country that could participate in global and regional energy markets.

The shortage of human personnel with the knowledge or the experience of the sector did not just hinder day to day operations, but also negotiations with the IOCs for the first rounds of PSAs and the LNG project. While there was some assistance by development agencies and donor governments, these could not fill the knowledge gap nor the power imbalances between the government and the IOCs. Furthermore, there were political considerations; one senior (and now retired) TPDC executive claimed that Kikwete went 'too soft' on the IOCs and ensured that terms in the PSA terms were 'very good' for them.[245]

The quality of PSAs between the government and IOCs depends on a lot of factors, one of which is what stage the exploration the country is in.[246] The lack of geological information in the region meant that both the government and prospective IOCs did not have the knowledge of where the hydrocarbon deposits were. Considering the fact that deep sea exploration was both capital intensive and required advanced technology, this created a situation whereby IOCs were taking a larger risk for exploration when compared to other regions of the world where there is more geological data. It also creates a situation whereby IOCs, who do have the geological expertise required to explore offshore, can try and downplay the quality of the resources in order to obtain a more generous deal.

As the Tanzanian gas industry was in its infancy, PSAs were modelled on a lack of geological knowledge and expertise. The lack of geological knowledge, on both sides of the negotiating table, increased the potential risk for the IOCs due to the nature of exploration that was to take place. This, with a pro-business Kikwete presidency, aided the creation of PSAs that would later be seen as unfavourable to his successor. Exacerbating this was the low level of expertise the petroleum sector, and despite efforts by international aid organisations and multinational institutions, resulted in severe information asymmetries between Tanzanian negotiations and their IOC counterparts, both in terms of negotiating ability and technical expertise. Despite the current claims from the government, the terms in the PSAs were not out of the ordinary for a country that had no proven hydrocarbon resources

[245] Retired Senior TPDC Executive. Note that this could be an attempt to 'shift the blame' so to speak for the perceived poor deals that were signed during the informant's tenure as a senior member of TPDC.
[246] Ibid.

(Manley and Lassourd, 2014). Unsurprisingly, the IOCs did not have problems with the PSAs.[247]

The initial discovery of gas came with little coordinated policy by the government and a lack of experience in the sector, all during a time of high energy prices. While gas was being discovered, much of the legal framework for the sector was from the 1980 petroleum act, enacted in a time of depressed commodity prices and structural adjustment policies. On the one hand, by industry standards, the gas industry during this time was growing at a standard pace and aided Tanzania to be added to the global energy map. Yet, on the other hand, it built a legislative and bureaucratic deficit based on information asymmetries between governmental institutions and IOCs. Attempts to rectify this started in 2015.

2.2 'They are Changing the Rules of the Game in the Middle of a Match!': Legal Changes in the Tanzanian Gas Industry

The pace of developments of the gas sector, combined with a legislative framework from 1980, ensured that new legislation was required both to reflect the gas, rather than the oil sector, and legislation that could better regulate the modern industry. This would take the form of the 2015 *Petroleum Act* (GoT, 2015d). Before this act, there was little legislative demarcation over the sector and a modern framework was required for hydrocarbon governance.[248] The 2015 legislation was designed for the high oil prices seen during the commodity super cycle (Bofin and Pedersen, 2017).

On the question of the contemporary origins of Tanzania's state-centred policies in the extractive sector, some commentators on the industry have focused on Magufuli's actions in the sector (e.g., Paget, 2017a). However, the reality is that the passing of the 2015 Petroleum Act served as a greater foundation for resource nationalist policies (Jacob and Pedersen, 2018). Influencing this legislation were electoral concerns, with opposition parties utilising the poor gains from the extractives sector in the 2010 and 2015 elections (Jacob and Pedersen, 2018). Despite the changes, Lange and Kinyondo (2016) contend that the 2015 legislation was relatively 'soft' out of fear of losing investors. Nevertheless, IOCs claimed that the act had been a 'bit of a blocker' for furthering the industry to production.[249] While the act brought considerable changes, there were still ambiguities within the legislation, particularly over procurement for petroleum rights (Kasanda and Mallikaaratchi, 2015). NGOs that focus on the sector were kinder in their appraisal, highlighting strong regulatory

[247] Ibid.
[248] State Lawyer 2 Interview.
[249] Senior IOC Executive 4 Interview.

principals and increased transparency (Natural Resource Governance Institute, 2016; Lee and Dupuy, 2016).

The 2015 Petroleum Act on the one hand, fundamentally changed the regulation of the gas sector, but on the other hand, continued with the highly centralised nature of resource governance in the country. This can be seen with the act specifically including approval of the minister for any exploration and development licences,[250] with approval also required by the cabinet.[251] It also places extra responsibilities of the minister in charge of the department that controls the sector which includes the responsibility to develop and implement policies in the sector, ensuring transparency as well as a variety of technical and legal processes. Considering the fact that ministers are hired (and fired) by the president (GoT, 1977), the reality is that while the legislation states that the minister is in control of the sector, the president has considerable influence on who dictates policy.

The biggest changes came in terms of regulation; the act separated the regulation of the sector between PURA, which as the namesake suggests, supervises, and regulates the upstream sector, and EWURA, who supervises the mid- and downstream sector. In particular, PURA's new mandate is extensive, and included not just monitoring and regulation, but it also acts as an advisory body to the cabinet and negotiates future PSAs. It changed the role of TPDC, changing it from a quasi-commercial and regulatory body to a fully-fledged NOC to undertake commercial aspects of the sector (Melyoki, 2017). It also created the oil and gas bureau, which is constituted within the office of the president, and will advise the cabinet on matters relating to the oil and gas economy.

Unlike the 2017 legislation, there appears to be some concessions between the draft bill and the finalised legislation. For example, the initial bill stated that TPDC will retain a 25% interest in any joint venture vehicle, but this was changed to be optional for TPDC. One of the changes that was rebuffed concerns development licence terms; under the 1980 legislation, development licences were for 20 years, and renewed every 20 years. This renewal was planned to be changed to be 15 years in the draft legislation. The original 1980

[250] The specific minister means 'the minister for the time being responsible for petroleum affairs' (GoT, 2015d: 19). At the time of passing, this was the Minister of Energy and Minerals, now, after the division into the Ministry of Mining and the Ministry of Energy, the minister responsible is the head of the latter.

[251] The act does not specify which ministry is in control over the sector. Rather the minister in question is defined as 'the minister for the time being responsible for petroleum affairs' (GoT, 2015d: 19). At the time of passing the legislation, this was under the Ministry of Energy and Minerals. This has now been split into the Ministry of Energy and the Ministry of Minerals, with natural gas under the supervision of the former.

terms have now been reinstated (Kasanda and Mallikaaratchi, 2015). While the act brought considerable changes, there were still ambiguities within the legislation, particularly over procurement for petroleum rights (Kasanda and Mallikaaratchi, 2015). Greater changes, frictions and ambiguities would occur in 2017.

These legislative changes were driven by the heightened mistrust of international investors, deriving from previous experiences in the mining sector.[252] Discussions with state bureaucrats suggested that the government had 'learnt lessons from the past' and sought to apply them to the future to ensure that the same mistakes are not repeated.[253] One CCM MP explained the role Magufuli had with these legal changes:

> 'When Magufuli came into power, he came with this nationalistic view of putting a house in order, and we have not struck a good balance with contracts in the mineral sector for many years. We have formed many committees to look at the challenges of the mineral sector and come up with recommendations which the government could take on board and execute. But their recommendations just sat on the shelves and collected dust. So, he [Magufuli] came in and said, 'hey you know we spend to bring these documents on the table, look up what recommendations were given, and the government next year will implement them'. I know these bold reforms are painful, no doubt about that, but it's part of that putting the house in order…What the current administration is doing is *trying to set a new pace* [italics added].'[254]

In setting a new pace, the Tanzanian government has sought to bring developments in the gas sector under the control of the government, rather than the rapid pace seen between 2010-2014. This has been done in an effort to avoid the mistakes in the mining sector, as well as the potential mistakes of hydrocarbon PSAs signed before 2015. This has been done during a phase in the commodity cycle where it is more amenable; falling commodity prices have ensured that there is a declining rate of return to investment, and therefore there would have been pauses and delays between exploration and construction and production. A slower pace also aids the acquisition of human capital required for capacity building required for governance over the gas sector, although this has been hampered by other actions by the government, which will be explored in the next section. The main methods the government has done this is by passing new resource legislation.

The year 2017 saw the passing of four pieces of legislation that greatly strengthened government oversight and participation in the extractives sector, but also provoked fierce opposition from IOCs. During my time in fieldwork, much of the discussion around extractives centred around the passing of these laws. The four laws were: *The Written Laws*

[252] State Auditor Interview; CCM MP Interview.
[253] State Auditor Interview.
[254] CCM MP Interview.

(Miscellaneous Amendments) Act (GoT, 2017c); the *Natural Wealth and Resources (Permanent Sovereignty Act)* (GoT, 2017a); the *Natural Wealth and Resources (Review and Re-Negotiation of Unconscionable Terms) Act* (GoT, 2017d) and the *Tanzania Petroleum (Local Content) Regulations act* (GoT, 2017b).[255] These legislations made the governance of the sector one of the 'most radical in Africa' (Bofin and Pedersen, 2019: 19).

The 2017 hydrocarbon legislation continued the centralisation of natural gas governance, with *the Natural Wealth and Resources (Permanent Sovereignty Act)* (2017a) with article 5.2 of the legislation stating that 'the natural wealth and resources shall be held in trust by the president on behalf of the people' (GoT, 2017a: 6). This change in the legislation changes the *de facto* control of the sector to *de jure.* Previously, this was officially under the state, although in reality due to the changes covered above in the 2015 legislation. This change makes the president an even more important part of the direction of the gas sector and in resource governance.

For the time being, all agreements signed before the new legislation will continue in place (GoT, 2017c). However, unlike the 2015 petroleum act, the 2017 legislations included legal mechanisms to ensure that any mistakes in PSAs and governance, either perceived or real, could be rectified in the future. This is seen with article 4.1 of the *Natural Wealth and Resources Contracts* act, where the 'National Assembly may review any arrangements or agreement made by the government relating to natural wealth and resources' (GoT, 2017a: 6), and re-negotiate any terms that are considered 'unconscionable' (GoT, 2017d: 7).

Such terms that could be considered unconscionable include PSA terms that 'restrict the right of the state to exercise full permanent sovereignty of its wealth, natural resources and economic activity', and are 'depriving the people of Tanzania of the economic benefits derived from subjecting natural wealth and resources to beneficiation in the country' (GoT, 2017a: 8). In essence, this act provides a wide scope of interpretation for the renegotiation of natural resource contracts. It also provides a legal mechanism to ensure that the Tanzanian government does not get, in their view a 'bad deal'; the ability to reopen contracts allows the government to correct perceived mistakes that have either been made in the past or are currently being discussed and turn out to provide poor returns in the future. This also ensures that if there are changes in the global economic climate, such as a rise in commodity prices, the government could quickly reopen PSAs in an attempt to obtain greater revenues. In

[255] Local content regulations act was covered in greater detail in the previous chapter.

essence, it allows the government to control the timeline of extractive projects, revisiting terms and agreements when outside factors make the agreement disadvantageous.

Alongside the declaration of sovereignty over minerals, article 11 of the *Natural Wealth and Resources* act also removes international arbitration from any potential disputes between IOCs and the government (GoT, 2017a). This is politically advantageous, as governments find it difficult to settle by negotiation in arbitration due to domestic political ramifications (Wälde, 2008). It also allows the removal of a potential disruption of renegotiation of contracts mentioned above, further strengthening the governments hand in case of any dispute.

These legal changes are as much a catalyst for a nationalist discourse as they are legal and economic policies. They have been utilised to symbolically re-establish control over the extractives sectors. Considering the popular distrust of MNCs in Tanzania, the push for greater involvement in the sector and the closure of tax loopholes proved popular in the country. They have also utilised international law to further their claim of ownership of natural resources. The language of the *Natural Wealth and Resources (Permanent Sovereignty)* act mirrors a UN resolution in 1962 that stated that the 'rights of peoples and nations to permanent sovereignty over their natural wealth and resources' (UN, 1962), as well as a similar resolution passed in 1974 that cited economic sovereignty the state has 'over its natural resources and all economic activities' (UN, 1974). Much like today, these resolutions were passed during a time of increased state involvement in the extractives sector.

These new laws, and specific articles mentioned above, give the government the power to both correct issues, and allow for a more controlled pace in the sector. Controlling the pace is important due to the fact that many of the perceived grievances the government has over extractive contracts come from a time where the pace of development on the ground was not matched in capacity building. It also allows for an expansion and obtention of human capital of the bureaucratic structure required to correctly govern the sector. It allows the government to control PSAs during changes of circumstance, such as rising gas prices, new hydrocarbon discoveries or exploited loopholes, that could change PSAs from being favourable to unfavourable. In essence, ensuring that the government always gets a 'good deal'.

2.3 Eroding Trust

The fear of getting a poor deal is centred around three linked factors: the country's previous experience in the gold mining sector, the state's inexperience of the hydrocarbon sector and concern that the country could face the challenges associated with the 'resource curse'. Alongside the populist rhetoric of Magufuli (Ponican, 2019a), the passing of resource legislation in 2017 was a 'pre-emptive strike' as a parameter for negotiations.[256] The result of this is that there have been fears among that negotiations are not being conducted in 'good faith' by the government.[257] The combative strategies of the government to ensure that any deal is a 'good deal', combined with previous experiences and potential future developments in the sector, has quickly eroded trust between the government and IOCs operating in the country.

As will be shown, it was not just the legal changes themselves that brought about animosity between the government and IOCs, but rather the strategies that accompanied the legal changes. The laws brought in have both reinforced a sense of government control in the sector, centred around the rights that the state owns natural resources. This was combined with a fear of poor returns in the sector with any potential deal in the future could bring. The strategies of bringing this, however, has eroded trust between the government and IOCs, and their reactions to these legal changes were negative.[258] These new laws also 'spooked' interviewees in the domestic supply services to the sector.[259]

The level of the animosity towards the 2017 legislations depended on what stage in the production phase their respective projects were in. Smaller IOCs in Tanzania, which were involved in the onshore gas industry, appeared to be less concerned with the laws than the larger IOCs involved in the offshore sector. Songas, for example, is 40 percent owned by the government and already did all their banking onshore, and these parts of the laws did not concern them, although did find them a 'smash and grab' on the industry as a whole.[260] Likewise, Swala Oil, despite their current issues with the Tanzanian government, did not find considerable concerns with the legislative changes.[261]

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[256] Interview, State Senior Executive 2, Dar es Salaam, 28.03.2018.
[257] IOC Independent Lawyer Interview.
[258] Ibid.
[259] Businessperson 3 Interviewer, IOC Supply Services.
[260] IOC Executives 2 Group Interview.
[261] Group Interview, IOC Executives 1, Dar es Salaam, 14.03.2018. During my time in Tanzania, a dispute emerged between Swala Oil and the government over the acquisition of 40% of PanAfrican Energy Corporation, the parent company of PanAfrican Energy Tanzania. While this deal did not affect the running of PanAfrican Energy Tanzania, the government felt it should be intitled to taxes

The laws represented the biggest threat to the larger IOCs in the LNG group. As the legislation had been passed before production, but after exploration, for the IOCs it was like 'changing the rules of the game in the middle of a match'.[262] In the hydrocarbon industry, there is, of course no one deal that resolves all the issues; separate contracts are signed between different IOCs for different blocks, and a separate deal between the government and the IOCs also has to be signed for gas infrastructure like the LNG. For the government, these deals had become a 'burden' (Bungane, 2016a).

A major issue IOCs found with the legal changes was not just the laws themselves, but the process of which they were made. The desire to review gas PSAs began before the election of Magufuli. In 2014, the Tanzania Revenues Authority announced that it wanted to review all mining and gas agreements with MNCs (The Citizen, 2014). Furthermore, Magufuli's opponent in the 2015 general election, Edward Lowassa, announced that, if elected, he would review all gas contracts to make sure that 'every citizen benefits from this business' (The Citizen, 2015c). There were considerable domestic pressures to enact a review of contracts both from the wider population and by politicians in the opposition party. Considering how the extractives industry had been targeted by opposition parties in the previous elections (Jacob and Pedersen, 2018), as well as Magufuli's populist rhetoric (Poncian, 2019a). In this respect, the domestic driver for the review of the contracts should not have come as a surprise for the IOCs.

The government's strategy for the legal changes to the gas sector were similar to that of the mining sector; special parliamentary committees were set up to review PSAs with extractive companies. The committee then provided legal changes based on their findings. Legislation is then passed based on the findings, with little consultation of any private actors. The passing of the 2017 gas legislation followed a similar pattern, with one of the main exceptions from the gold mining sector is the fact that the sector also saw export bans and large fines.[263] The approach to Acacia mining in particular, combined with the apparent

from the deal and ordered a delay of the acquisition to see more details. From my observation it appears that Swala was in the right over the dispute, as it did not affect Tanzanian hydrocarbon operations, and out of all the energy companies in Tanzania, the company had been one of the most compliant with the new legislation, even going so far to be the first IOC listed on the Dar es Salaam Stock Exchange. This was furthered when, in another IOC interview held just after meeting Swala representatives, the interviewee promptly responded that Swala always 'played by the rules' (Senior IOC Executive 4 Interview)).

[262] Senior IOC Executive 1 Interview.

[263] Unlike the gold sector, the only operating side of the gas sector is onshore, and only serves domestic customers, chiefly the government.

disregard for the 'sanctity' of contacts,[264] has eroded IOC trust of the government. Similar to the parliamentary committees report into the mining sector, the report into the gas sector has not been made public.

Dispute the fact that the industry has now established itself over the past decade, comments that the government does not understand the industry and that they do not know how to expand Tanzanian involvement in the gas industry were common.[265] While this was in part due to the fact that before 2015, the country had fairly lax regulation with minimal tax requirements, and hence this was a challenge of the status quo for the sector. In this respect, the legal changes also ensured a degree of learning and understanding within the bureaucracy that supervises and governs the extractive sector. Additionally, as both the 2015 petroleum act and the 2017 resource legislations are changes, and particularly for the latter, a challenge to the status quo of resource governance, it would be understandable that there would be strong IOC opposition. Nevertheless, this criticism was constant among different IOCs with the establishment of the investigative committee. When interviewing one of the smaller IOCs, that supplied the domestic sector with gas for electricity generation, one respondent stated:

> The special committees visited all IOCs in Tanzania. They wanted to know how PSA's work, and how come the government is not making money. They did not know that the government is taking a chunk of money. They did not know the government has to pay for the gas either. Goodwill has kept the lights on. They did not know that Wentworth are sellers, and TPDC and TANESCO are the buyers. There are big issues to resolve. The task force is complete, but don't know the findings. Based on previous reports, it might be bad.[266]

There were suggestions that the 2017 laws were written by one person in a quick manner.[267] Some IOCs had only one day to consult on the legislation,[268] while others did not get consulted at all.[269] This proved frustrating for many IOCs in the country, irrespective of size. This suggests that, while the industry as a whole is currently not advancing at a similar pace as it did in the early 2010s, legislative change was fast, with little involvement of other actors.

In this respect, the legal changes are as much a negotiating tactic as a widespread change in resource governance. While pro-market theories on resource nationalism suggest

[264] Senior IOC Executive 4 Interview.
[265] Independent IOC Lawyer Interview; Senior IOC Executive 4 Interview.
[266] Senior IOC Resources Executive 3 Interview. Note that this is one of the IOCs operating in the onshore gas sector and therefore is producing.
[267] Ibid.
[268] Senior IOC Executive 4 Interview.
[269] IOC Executives 2 Group Interview.

international drivers, it is domestic drivers that have led to these laws. Time is central to this as articles have been placed as a safeguard against either perceived mistakes made in the past or perceived mistakes currently being made through revisiting PSAs and ensuring that arbitration occurs in Tanzanian courts. Time has also been used both used as a 'shock tactic', where legislative measures have been passed in a quick manner with little discussion with IOCs over the planned changes. This has been used in part to set a new pace for the industry. While the shifting from the exploration to the production phase in the sector was standard by IOC standards, for the Tanzanian state, there were concerns that mistakes would be made with the speed of the sector advancing to the production phase. Nevertheless, these laws, and the way they were enacted, have eroded the trust between the state and IOCs, slowing down the pace of the industry to a pause.

3 Politics and Bureaucratic Restructuring

Institutional changes to state organisations began in 2012 onwards, with a push towards a more resource nationalist agenda (Pedersen *et al,* 2020). Yet it was the 2015 petroleum legislation not only brought legal changes, but also structural changes in the bureaucracy of the gas industry. Chief among these was the establishment of the PURA, changing the role of TPDC (Melyoki, 2017), new responsibilities for EWURA, and new advisory bodies such as the oil and gas bureau, which was created within the office of the president in order to advise the cabinet on matters relating to the hydrocarbon industry. This bureaucratic restructuring was done in aid to obtain expertise in the sector as well as clarify the governance structure of the sector.

3.1 Learning as you go: Familiarization in the Gas Industry

The discovery of commercial quantities of natural gas, and the resulting interest from IOCs, including the 'supermajor' IOCs, prompted a period of learning by the Tanzanian government and the bureaucrats taking charge of both legal changes and negotiations with IOCs. For the government, this period of learning the intricacies of the industry, and was described to me as one of the largest challenges facing the Tanzanian upstream sector.[270] This was both for technical personnel as well as the more administrative and legal side of the industry. This inexperience in the sector was reflected upon with an interview with a CCM MP, who stood on the energy and minerals committee. When asked about the challenges

[270] Group Interview, State Geologists, Dar es Salaam, 03.02.2018.

facing the sector, he claimed that the main challenge that affected the country was the fact that:

> Being new affects us. It's challenging in itself because if you're not careful on the get go at the beginning you can make poor preparations in terms of putting your house in order. And by that we mean making sure you are ready…The IOCs have more knowledge than our country because they are older. They are older than our country itself, many of these IOCs have been here for at least 200 years. So, there is no doubt they have more financial and technical capacities of resource extraction. So, working with young emerging countries with a company with which are still developing, and they are required to allocate resources sufficient to make sure the sector is managed well. It means you have to invest in people you, have to invest institutions which becomes a challenge'.[271]

The growth in knowledge of Tanzanian personnel has been a strategy for the Tanzanian government as a whole since the inception of the gas industry, often though local content initiatives. Alongside this reason, the promotion of growth in human capacity in the gas sector was done for two purposes; firstly, as mentioned before in this chapter, the discovery of considerable deposits in the late 2000s, there was an understanding that the establishment of strong institutions could prevent some of the issues around the 'resource curse'. Secondly, the Tanzanian government needed personnel to staff and run these new institutions required to manage the industry. Many of the technical and legal personnel interviewed in this thesis had previous training, either on-the-job or as a master's degree, in either the UK or US.[272] Fundamentally, alongside the presence of a new industry required trained personnel to correctly manage, supervise and participate in it. The importance of human personnel was emphasised by the same CCM MP who claimed that:

> Sometimes people believe that once you have very good [oil and gas] policies and legal documents that you are good to go. I would say that's one tenth of the job. It's an important one tenth. But the nine tenths are in the human personnel behind these institutions and legal policy document, making sure they are knowledgeable enough to use these documents as a guidance on how you manage their resource in a way that benefits the owners and these are the truth to them. So, for Tanzania being a new sector, I'm glad that was part of those that group being trained to advise on how we can put a house in order in terms of what I just said and ready to shoot the sector that way that we can benefit as a country.[273].

All this learning has taken considerable time, and the country still has not managed to obtain the depth of experience required for the sector. This has presented information asymmetries from the start. It also led to some paradoxes: Training of negotiators has come

[271] CCM MP Interview.
[272] A high proportion of interviewees went to Scottish universities for oil and gas training, and this allowed for some building of rapport before and after interviews discussing similarities and differences between life in Tanzania and Scotland. For more information, see chapter three.
[273] CCM MP Interview.

from both the IOCs themselves,[274] and by countries closely tied to IOCs such as Norway.[275] This has occurred while negotiations were and still are ongoing. Hence, from the start of the Tanzanian hydrocarbon sector, there has been strong information asymmetries from the very beginning of the gas lifecycle.

In this respect, the initial training of personnel that could supervise and participate in the upper levels of a national gas industry did not run in tandem with the exploration and appraisal phases of the gas industry. The clear information asymmetries present in the industry have also ensured that the strategy of taking time to ensure that such asymmetries can be overcome, or at least narrowed. However, alongside difficulties in training and obtaining experience in the sector, has been political moves that have stymied capacity building.

3.2 'One Fool Costs the Whole Country': Political Changes in Tanzanian Bureaucracy

It appears that the approach of 'learning as you go' to speed up the process has now been reversed; concerns over getting a perceived fair deal have overcome speeding up the process to ensure that construction and production could be completed in a timely manner. These bureaucratic changes required by law require an increase in personnel. The limited numbers and lack of experience of TPDC staff was noted as early as 2014, with NORAD noting that there are 'limited professional staff available in TPDC to carry out its mandate effectively' (Pedersen *et al*, 2020). The election of Magufuli brought considerable changes in personnel, with the firing of previous heads of ministries and parastatals and replacing them with his own hires. Rather than focusing on a specific sector, this has been across the board of Tanzanian bureaucracy.[276] A part of this was expected, as 'every minister comes in with their own agenda, they expect changes to be implemented.'[277] With the change from the more business-friendly Kikwete, whose administration saw intra-CCM conflicts over corruption (Gray, 2015), to the more hard-line state-centred Magufuli, such changes were to be expected. Initial firings over corruption were originally celebrated both in the country and by the international community (Guardian, 2015; DW, 2016). However, such celebrations

[274] Senior IOC Executive 4 Interview.
[275] The Norwegian government is closely tied to Equinor, with the government historically holding a majority ownership of the company.
[276] This had the knock-on effect of trying to obtain interviews from bureaucratic personnel very difficult. See Chapter three for more detail.
[277] State Geologists Group Interview.

quickly changed when Magufuli's more authoritarian tendencies became apparent (e.g., Economist, 2018).

One of the largest bureaucratic changes in the sector started before the election of Magufuli. The establishment of PURA in the 2015 Petroleum Act. Its remit includes advising the energy minister and the government in matters relating to the negotiations of PSAs,[278] as well as being the regulator and monitor of the sector. Whilst these changes appear on paper, by the time I had met PURA personnel in 2018, there had been little movement in staffing the organisation so that they can fit their remit. Nobody within PURA had been directly employed to the organisation, rather the personnel there had been seconded from either the TPDC or the Ministry of Energy and Minerals.[279] Because of this, PURA has struggled, as one senior member seconded to PURA from the ministry of energy told me:

> We're currently in the management of the transition period. These responsibilities were originally under the TPDC. PURA was given these responsibilities. Some of these responsibilities are still under TPDC, by nature we had to transfer these responsibilities. This is still in the process, we need to build capacity in human and capital resources. We are required to execute things, but we do not have the capacity.[280]

Because of this, PURA is still unable to fulfil its mandate and has stymied its function and caused difficulties in the oversight of the sector. As PURA is essential for the upstream regulation and provides advice to the minister of energy on gas related matters, it, in theory, is central for the governance of gas. On a side note, I found that PURA to be the most approachable and easiest government sector to interview, both in terms of obtaining interviews and information given.

For the gas sector, senior personnel in TPDC, Ministry of Energy and Minerals (which would later be divided) and EWURA were removed by Magufuli. This has contributed to the considerable slowdown of the sector and has cost many of the smaller IOCs operating in the sector time and money to follow these constant changes in laws and personnel.[281] Alongside this, the entire senior management were removed from TANESCO, affecting the onshore gas industry.[282] Many of these changes at the top were political, and some senior officials interviewed were there in an 'acting' capacity. Examples included all personnel at PURA, as

[278] The act specifies the Energy and Minerals minister, but since 2018, the ministry has been split into two: The Ministry of Energy and the Ministry of Minerals. The process of dividing the ministry into two was ongoing during my time in fieldwork.
[279] Senior State Executive 2 Interview.
[280] Ibid.
[281] IOC Executives 1 Group Interview.
[282] IOC Executives 2 Group Interview.

well as the senior executive at the Ministry of Energy and Minerals interviewed, and the acting head of TPDC.[283]

The result of this has been paradoxical; while there has been attempts to build up expertise in the sector through both academic and practical training, the government has simultaneously removed Tanzanians that have had in some cases, decades of experience in the sector. This has not been a coordinated attack on the sector, but rather a part of a wider campaign conducted by Magufuli to remove civil servants, often under charges of corruption. It has become his 'signature move' (Paget and Kwayu, 2020). While this began as a popular commitment to remove corruption from the government, it has become a mainstay policy that has continued throughout his first term in power.

The result of this has been an installation of a culture of fear in the sector. The fear behind making decisions has in part affected the gas industry. Both the fear behind making decisions that could turn out to be poor for the country, or not politically agreeable, and this loss of expertise has had the knock-on effect on the Tanzanian bureaucracy. Representatives from Songas, one of the smaller IOCs that operates Songo-Songo, noted that:

> 'There are big changes to the political regime. People used to be open to make decisions, this time around people are pushed to meet stakeholders. There is a weakness in the independence of institutions – [senior officials from] EWURA were removed from the job, TANESCO were removed, the MD of TPDC removed. This has slowed down processes in the sector due to the loss of intelligence. There is currently nothing happening on the ground, people 'are putting their heads below the parapet'. People don't know where they are going. Hopefully, this is temporary, but the last year/year and a half have seen things move more slowly.'[284]

Considering how centralised the Tanzanian state is to the running and governance of the gas industry, this has aided the current pause in the sector. The fear has both reinforced the fact that decision-making is centralised to the president. This centralisation, combined with the fact that firings of bureaucratic personnel have become commonplace, has created an absence of leadership in the sector. The result has been that while there have been considerable legal changes put into effect, the bureaucratic structure to run the industry in day-to-day operations has lagged. The new personnel require time to obtain knowledge and experience compared to their predecessors, leading to concerns that there will be a lack of

[283] Examples included all personnel at PURA, as well as the senior executive at the Ministry of Energy and Minerals interviewed, and the acting head of TPDC.
[284] IOC Executives 2 Group Interview.

action, or bad decisions.[285] This absence of leadership also affected on the ground operations in Mtwara.[286]

In this respect, while the passing of the legislation has been done quickly due to the political will of the president, attempts to control the sector have not been followed through with strengthening of personnel. Rather, the constant firings and removal of senior personnel has removed expertise that could have aided the running of the sector. This is combined with a culture of fear that has developed in the Tanzanian bureaucracy, leading to a lack of leadership that is unwilling to make decisions in case of making a mistake, to create an industry that shows little signs of advancing, and has exacerbated tensions between IOCs and the government. The reforming and political upheaval of institutions that provide oversight and governance of the upstream sector has gone against the longer-term strategy of enhancing institutions for greater hydrocarbon oversight. Rather, there has been short-term changing of personnel, done for political purposes, that have weakened a longer-term strategy to improve human capacity.

4 Conclusion

Legislation and bureaucratic oversight have been more of an effort to control the temporality of the sector rather than the space. While the models that explore resource nationalism have paid considerable attention to international temporalities such as the market cycle and the stage of the sector in a country, they have paid less attention to domestic factors, nor the historical imaginaries that could be present that drives countries to commit to such policies. The view of the past, in this respect, the poor economic return from extractives, has led to the government of Tanzania to try and both correct these mistakes of the past and ensure they do not happen again in the future. These domestic drivers and temporal safeguards are central to stop perceived 'bad deals' from occurring in the future.

The legal changes have been conducted in an attempt to obtain greater economic rent from the gas through the controlling of time, in this respect, the ability to correct perceived mistakes of the past. This is reflected in the legislation passed in 2017 that allows for the renegotiation of contracts and a removal of international oversight and opposition through the removal of international arbitration. In essence, the government has looked to ensure that any deal passed will not be a detriment to the state in the future. This was done in part

[285] IOC Executives 1 Group Interview.
[286] Interview, Gas Technician, Mtwara Municipality, Mtwara, 09.07.2018.

due to the previous experiences the government has had in the sector and was done to alter the previous information asymmetries experienced when exploration began. These laws were passed quickly to make sure they are available for upcoming negotiations on the LNG plant. While some public employees claim they will allow for an ease in negotiations, it rather has eroded trust in the government from the IOCs.

Bureaucratic restructuring has both been enacted and slowed by political changes. While there have been large changes to the regulation of the sector, the ministries and regulators have lost both personnel and expertise with Magufuli's commitment to lower the number of staff across the Tanzanian bureaucracy. This has meant that the changes have not been implemented or are being implemented slowly. The country, despite now having some sort of experience in the sector, remains underutilised to handle considerable revenues that an export sector can bring. The bureaucracy to handle the sector lacks both breadth and depth. In many respects, due to Magufuli's instillation of fear and sackings of senior personnel, the capacity of taking decisions needed to advance the offshore sector is limited. Other institutions, such as PURA, are still building capacity half a decade after its instillation.

In this respect, time has been used as a tool by the Tanzanian government to ensure that Tanzanian government officials have both the capacity and the institutions to handle the sector effectively, going at their own set pace rather than the faster pace seen during the initial discovery and exploration phase. This has been done to obtain greater economic benefits from the sector, or, as Tanzanian government employees put it, to get a 'good deal'. The pace of the industry has been fundamentally altered, and thus has prevented any momentum to production in the industry. This, in theory, has given the government the opportunity to set up institutions like PURA effectively to oversee the whole industry and renegotiate PSAs and negotiate the LNG at a position of higher strength. This has not happened. Instead, the governments firing of personnel and greater centralisation of decision making has led to a culture of fear that has made it difficult to make decisions at the mid-level and cause a further loss to Tanzanian bureaucratic capability.

Chapter IX: Conclusion

1 Introduction

This thesis has sought to unpack the ways temporalities of the hydrocarbon sector have been exhibited from a variety of actors across different spatial scales. Due to the nature of time, this is not an exhaustive list, rather this thesis has highlighted some of the most prominent ways temporality has been exhibited in the sector due to differing actions and strategies by direct stakeholders. These differing perceptions of time have resulted in friction between a variety of actors. Yet, these frictions have been exhibited in a variety of ways. This chapter seeks to assemble the arguments presented in the previous chapters to answer the research questions first presented in the introduction to this thesis. It will then discuss post research events in the sector that have occurred after my time in Tanzania, as well as some of the broader methodological limitations this study has.

2 Temporal Frictions

This study's main research question asked how the temporalities of extraction influence the actions of direct stakeholders in Tanzania. As demonstrated throughout this thesis, actions by different stakeholders have not been uniform. Secondary questions focused further on how materialities, economic development and governance have interacted with time and temporality. As this thesis has shown, this has had a variety of consequences. Chief amongst these has been frictions between differing stakeholders across various spatial levels. This study has not sought to be an exhaustive list of all aspects of temporality and time exhibited in the sector, for example, this thesis has not focused on environmental concerns around hydrocarbon extraction, which would have enormous spatio-temporal repercussions both at the global and local scale. Rather, it has had a specific focus on the frictions, politics and materialities influenced, or had been influenced by, the temporalities in the sector.

2.1 Changing Extractive Temporalities

The temporalities of extraction this thesis has covered have chiefly been in the form of the commodity cycle, linear project timelines and often contrasting imaginaries of the future. These temporalities are not static and have evolved since the discoveries of deep-sea hydrocarbons in the early 2010s from a variety of events, both international and domestic,

with stakeholders altering and changing their actions through a variety of different means as a tactic to respond to these changes.

Global capital, dictated by the rising commodity prices, reshaped the space of both Tanzania and Mtwara to 'energy frontiers'. Frontiers suggest a reterritorialization of space for capital, however it is also a readjustment of temporalities for the region. This was true for both Tanzania and Mtwara. For Tanzania, the country was seen to have potential as an energy investment destination with a future as a mid-tier hydrocarbon exporter. Yet the changes go beyond the market discourse that introduced this thesis. Both IOCs and the government made plans for Tanzanian gas based on high commodity prices, when these prices fell, rather than sustaining their heights, these plans have had to be changed, and with them, projected futures of what gas can provide. Nevertheless, for the government, the use of gas for industrialisation and wider economic development has remained in spite of a drop in global gas prices, and instead, has seen increased demands on the sector for greater inclusion and developmental results since the fall in prices in 2014.

This reterritorialization also reshaped Mtwara's attractiveness as an investment destination. The introduction of the hydrocarbon sector also brought with it new forms of temporalities that have had drastic influences on local economy of Mtwara. As chapter five demonstrated, Mtwara became a frontier for domestic capital as well as an investment destination for international investment. In this respect, the temporalities of extraction, in this case, the commodity cycle, influenced domestic financiers to invest in the region in preparation for a commodity boom. While Mtwara did receive an economic boom, it was not a direct resource boom, rather it was a construction and investment boom in preparation for a resource windfall. Hence, despite domestic investment, the reshaping of Mtwara as an investment destination was very much international through regional gas prices. Once these prices began to fall, and it became apparent that there would be little advancement to the construction and production phase of the offshore sector, domestic investment into construction and real estate dropped. In other words, while the investment in Mtwara was from international and domestic sources, the driver of this investment, and its demise, was purely international.

As Frynas *et al* (2017) argue, preparation for natural resource windfalls can lead to characteristics of the 'resource curse' appearing. While not a macroeconomic analysis, as this thesis demonstrated with Mtwara, these preparations also occur at a local level, and lead to negative effects on the region. Much has been written on post- resource boom regions and

towns (e.g., Ferguson, 1999; Walsh, 2012), however, in the case of Mtwara, there has been no resource windfall to enable a 'boom town'. Rather, it is a city that has faced a resource bust without actually experiencing a resource boom. In this respect, it is a different situation to Ferguson's analysis of the Zambian Copperbelt in *Expectations of Modernity*; in some respects, in the 1960s, the Copperbelt experiences some of the attributes that was promises, albeit for a short period of time, of 'modernity'. In the case of Mtwara, they have not. Rather, there had been some improvements to infrastructure that enhanced the belief that a gas-led future was possible, but the resource windfall and subsequent industrial development failed to materialise. Because of this, offshore gas is still there, but the experiences of the Mtwara population have led to the imagined future that was promised to dissipate.

This bust in Mtwara was not just connected to global markets and commodity price trends. It was also connected to the transitions of phases in the gas well lifecycles for both the onshore and offshore sector. For the offshore sector, while there had been a decline in gas prices, discussions to progress the sector had been ongoing, albeit slowly. Hence, the sector was still experiencing movement in the boardrooms of Dar es Salaam, rather than on the ground in Mtwara. For the onshore sector, there had been a change from the construction phase to the production phase. This led to a reduction in temporary unskilled jobs and semi-skilled jobs, to more skilled permanent employment that were less in number and out of reach for the majority of the local population. As stated in chapter five, the poor communication over this change and impact on local agricultural practises has had an impact on livelihoods for those living close to the extraction sites as people lost out to the changes made with little of the improvement promised.

Whilst rarely explored with extractive literature, project lifecycles and phase transitions in hydrocarbon infrastructure projects also have a great impact on direct stakeholder actions. As demonstrated in chapter six, for the LNG and EACOP projects, transition to the construction phase has thus far proved elusive. This is due to the lack of FDI decisions for both projects, and a lack of synchronicity for both projects. However, the causes and results of this have been different.

For the LNG project, the long timescale from construction to production, has had an impact both on the project itself and the government's commitment to the project. This is tied to the Tanzanian government's long-term strategy for gas-based development, which is covered below, and the lack of short-term political gain for advancing the project. This absence of short-term gain, with the focus on export rather than domestic development, has

led to a lack of political will on the government's side for the project. The absence of short-term political gain is in contrast with the EACOP project, which would allow for a temporary boost in employment and business participation.

Alongside this is the fact that the IOCs involved in the project have not agreed amongst themselves technical details and an overall strategy. The schism between Shell and Equinor is particularly noticeable, with the latter now engaging directly with the government over a smaller LNG plant to process gas from block 2, Equinor's gas field, which may in fact fit in better with Tanzania's goals for domestic development. This has all been conducted with technological and market changes in the gas sector, and a perceived 'window of opportunity' that may see the opportunity of international export close. In short, the main actors of the LNG have competing visions of future timescales and strategies and has led to deadlock for the LNG to progress.

EACOP, on the other hand, was more impacted by frictions between the IOCs operating in Uganda and the Ugandan government. As the HGA between Tanzania and the IOCs operating on EACOP have to be uniform in a variety of areas with the Ugandan HGA, there is little the Tanzanian government can do in such a situation. Rather, the short construction phase and the amount of investment, has led to an increase in interest of local content policies, which were the subject to chapter seven. These frictions are expanded upon below.

Extractive temporalities, in this case commodity price cycles and linear project lifecycles, have had different effects that are dependent on the nature of the project and actors. For IOCs in Tanzania, the market price and price forecasting have both encouraged exploration in Tanzanian waters, and dictated future infrastructure investments. The government has sought to use the construction phase in both the LNG and EACOP projects to maximise business and labour participation. Although neither projects have begun to start construction, there has been far more pushback from the LNG project than the pipeline, due to the technicality of the project. These lifecycles also impart themselves on the local community through temporary employment and encouragement of investment. As seen in Mtwara, when temporary employment evaporates, poor communication from the government and IOCs has led to a reversal in the imaginary of what natural gas can do for the future of the region.

2.2 Resource Nationalism and Time

Alongside an increase in commodity prices has been attempts by states across Latin America and Africa for greater benefits from the extractive sector. Tanzania has been at the

forefront of these resource nationalist policies in Africa, and this has increased tension between extractive MNCs and the government in the process. As mentioned throughout the thesis, older pro-market models of resource nationalism in the hydrocarbon sector suggest that time is a central factor behind states increasing their presence in resource extraction, albeit in a deterministic manner (e.g., Vernon, 1977; Bremmer and Johnson, 2009). With the rebalance of resource nationalism as a term and analysis, there has been great gains in the knowledge of the drivers behind increased state participation (e.g., Childs, 2016; Koch and Perreault, 2019), however, time and temporality has been left out of this analysis.

The Tanzanian government, first with Kikwete in a quiet manner, and then Magufuli in a more brazen way, have committed towards policies deemed 'resource nationalist'. The drivers for these actions have been both political and developmentalist. The policies were utilised by Kikwete and Magufuli to avoid opposition talking points, provide a populist policy that is widely popular in the country. For Magufuli, it also allowed the discourse of resource nationalism to tie himself with Nyerere's economic ideals of self-sufficiency and used this legacy to boost his own political popularity, as well as correct perceived wrongs of past dealings with MNCs.

As chapter four and seven demonstrate, the role of hydrocarbons within Tanzanian development has been domestic industrialisation by utilising gas as a resource for electricity generation, and as a raw resource for petrochemicals that could be used to supply the agricultural sector. Rhetorically, this was for the entire nation, rather than just direct benefits in the locations resources were found. The result of this was to enact new resource legislation, first in 2015, and then multiple resource legislations in 2017. The speed of passing and the lack of consultation and discussion with private sector stakeholders for the latter set of legislations both eroded trust for further negotiations and demonstrated a form of 'shock and awe' to legislative change. IOC responses to the legislative changes have a been strong condemnation of the legal changes and the way that these laws were enacted. This is in part due to the fact that the 2017 legislations presented a change in the status quo for IOCs and was tied with lowering gas prices which would affect the economic viability of the project.

While some market analysts suggested that the commodities super cycle could continue for decades (e.g., Canuto, 2014), these policies have instead been enacted amongst a backdrop of declining oil and gas prices. In this respect, the Tanzanian case is opposite to pro-market theories of resource nationalism, which suggest a reduction in such policies during times of low commodity prices and a lack of established infrastructure. The case of Tanzania

suggests that resource nationalism is less tied to the temporalities of extraction, either the project lifecycle or commodity cycle, than pro-market theories suggest.

For Tanzania, these theories do not hold weight because they have neglected the history, domestic policies and changing strategies of governments who pursue resource nationalist policies. As shown in the previous chapter, these latter legislations were enacted in an effort to control the time of the sector. Alongside the symbolic declarations of permanent sovereignty over resources found in Tanzania, the laws allow the ability of the government to reopen PSAs allow the government to attempt to correct the perceived mistakes of the past and the present, while the removal of international arbitration allows for the removal of potential international opposition. Through this, the laws have been used as a safeguard for the effects of the PSAs over time to ensure that the country benefits from hydrocarbon extraction during peaks and troughs of the commodities cycle.

The laws have also been used to help set a new pace for the sector, one that is slower and more amenable to the domestic demands the government wishes to put on natural gas. In theory, a slower pace would allow for human capital to 'catch up' after the fast progression during 2010-2015 and would ensure a more through negotiation process to ensure that the government obtains a 'good deal'. However, this has been compounded by short term firings of experienced personnel and a culture of fear of making decisions in middle management, which leads to questions over whether this slower pace in the sector will benefit the government.

Alongside using attempted corrections of past issues is developmental imaginaries of the future. This has been shaped largely by the materialities of natural gas; firstly, hydrocarbon infrastructure projects, in particular the EACOP project, were to aid local businesses and labour participation through local content strategies, and aid other sectors of the economy through a 'multi-sectoral' strategy. In this manner, EACOP was to be used as a springboard for business growth and an increase in the skills of the national workforce. However, the viability of this strategy, in particular semi-skilled and skilled labour, remains questionable due to the geographies of local content, which have been focused on the core of the country, leaving other areas with the less beneficial 'local-local' content. More importantly is the use of gas in electricity generation, and as a raw resource for industrial purposes has shaped natural gas into a developmental resource. Unlike other resources, such as gold, the developmental impact of gas was expected to be higher and wider reaching across more

sectors. For example, utilising gas for fertiliser production, both as energy to power the factory, and as a raw resource, would allow farmers access to domestic fertiliser.

Concerns over getting 'bad deals' are compounded by non-renewable nature of hydrocarbons. Because of this, there is extra pressure to ensure that the PSAs signed between the government and IOCs would allow Tanzania to benefit from hydrocarbon extraction. As highlighted in the previous chapter and chapter six, pressure to progress the offshore sector from IOCs, either due to market, technological or geopolitical changes, have been offset by this government mind-set. Tanzania's long-term strategy for hydrocarbons has guided its current approach to hydrocarbons, although outside factors may ensure that offshore extraction may not become economically viable in the future.

Tanzania's nationalist agenda is further highlighted by the fact that the policies are focused on using gas and its associated infrastructure for domestic development. This is true even for export-orientated infrastructures such as the LNG and EACOP projects. At its core, natural gas is envisioned to play a vital part of Tanzania's industrialisation and economic growth, and all parts of the sector are seen to play a role in this goal. In this respect, Tanzanian resource nationalism called back to an idealised past, but also to a future where gas would fuel, both literally and figuratively, economic development and industrialisation.

The materialities of natural gas, combined with the imaginaries of the future and resulting strategies, have created friction both within the state, which is covered in the section below, and between the government and IOCs. The historical legacy of gold mining, combined with the contemporary political dissatisfaction of extractives, has led the government to attempt to obtain a 'good deal' before production takes place. In essence, it is viewed that securing changes before this transition is paramount to ensure that the government obtains greater benefits from natural resources. This is at the core of the temporalities of Tanzania's resource nationalism and helps explain the drivers behind the legal changes and the combativeness of the government toward MNCs. This is tied with a long-term vision to utilise all parts of the gas sector for domestic development.

2.3 Temporal Tensions between the Core and the Periphery

As demonstrated with the sub-sections above, the temporalities of the hydrocarbon sector have predominately caused friction between actors. However, the introduction of hydrocarbon exploration and exploitation to Tanzania did not just influence the relationship between the Tanzanian government and international capital, but also the relationship between the government and local populations within the country. Resource nationalism is

not just committed to policy, governance, and legislation, they are also nationalist in the social sense. For Tanzania, this meant that hydrocarbons are supposedly of the benefit of the whole nation, not just the regions that accommodate the projects. This is rooted in the historical imaginary of Tanzanian nationalism and has had unintended consequences. The introduction of the hydrocarbon sector in Tanzania has drawn out tensions between the core and the periphery of the country. This has been true for both Mtwara and Tanga. However, the actors and frictions exhibited have been different for both regions and cities

For Mtwara, the frictions have been between the local population and the central government over the future of the gas sector, and this has had violent consequences. Although not explicitly discussed in current literature on the phenomenon, resource nationalism can evolve through a variety of changes in the sector. Traditionally a region that has been neglected by the central government, the resource sub-nationalism exhibited in Mtwara had been closely tied with the wider Tanzanian resource imaginary of gas-led development, with the main exception being the degree of localism. The expectations and imaginaries were exacerbated by political promises made in the 2010 general election.

The boom-and-bust cycle, and the different phases of project lifecycles, combined with investment from international and domestic sources ensured that economic development was quickly tied to a natural gas industry in Mtwara. As chapter four and five demonstrate, these changes have had long lasting effects on the city and region. The discovery of gas was accompanied by infrastructure improvements in the forms of increased electricity generation and access, improved roads, and new factories. This was accompanied by investment into the region, with the construction of modern banks and hotels to accommodate the sector. These provided the material confirmation that natural gas was to act as a modernising force for the region and boost economic and social development.

This imaginary began to change with the confirmation of a pipeline that transported gas from Mtwara to Dar es Salaam for electricity generation. The competing imaginaries of the future had less to do with the removal of the gas from the ground, but rather how, and more importantly, where the gas would be used. The confirmation, and subsequent response by the government to the protests and riots, resulted in a change in the perception of what gas can provide for the region. With gas now going to Dar es Salaam, it has also symbolically removed the developmental imaginaries that were the bedrock of Mtwara resource nationalism. This removal of a core part of this imaginary led to protests, and eventually violence, and was cracked down by the government who saw the protests as a threat to their

authority and sovereignty over the gas. Now, rather than being the economic catalyst promised, gas has added to the historical grievances that many in the region perceive.

Such frustrations with the centralised model of resource governance were also found in the EACOP project, albeit at a smaller, less confrontational level and confined within the business class in Tanga. As chapter seven demonstrates, Tanzania's local content policies, and the desire to implement them quickly due to the (at the time), short construction phase. The speed to establish a local content policy and provide information networks had alienated the local elite in Tanga, who are unable to participate in the process due to the majority of companies in Dar es Salaam mobilising, both to form pressure groups and to control the flow of information to members.

Unlike Mtwara, the frictions between the core and the periphery are chiefly held within the business community. While there were frustrations with the government over local content policies, much of Tanga's business community was frustrated with their counterparts in Dar es Salaam and EACOP's management. The desire to implement local content policies at the same speed as EACOP's implementation (at the time), led to a centralisation of businesses available to participate.

Materiality, in this case in the form of pipeline infrastructure, altered the perceptions of time for both the population of Mtwara and the business community, albeit in different ways. For Mtwara, it was a signal of the end of gas-fuelled industrialisation for the region, for Tanga, the short timescale for construction and the investment required led to a closing out of potential participants for local content on the project. This emphasizes the multifaceted ways materiality can impact one's perception of time, as the announcement and construction of the Mtwara-Dar es Salaam pipeline removed the idea of future prosperity, but the announcement of EACOP initially promised increased economic development for the regions the pipeline passes. It further highlights the importance of the influence hydrocarbon infrastructure has in social processes (e.g., Mitchell, 2011), and how these processes are localised within their historical context.

The rhetoric of Tanzania's resource nationalism is one that supports natural resources benefiting the whole nation. Yet, for both Mtwara and Tanga, this rhetoric has rung hollow; for Mtwara, the production of gas has allowed for some realisation of development from gas, chiefly though electricity generation. However, while this production enabled electricity generation, its benefits have not been equal; with the southern regions supplying the natural gas, they have yet to be connected to the national grid to enjoy such benefits. In this respect,

there is a perception that the more prosperous regions of the country, chiefly the north and Dar es Salaam, have benefited from Mtwara gas. For Tanga with local content applying equally to the whole country, and more unskilled-focused 'local-local' content applying to the immediate area, there has been a geographical separation of the skilled and unskilled opportunities available for the project. This is compounded further by the networks established to distribute information, which have tended to distribute information to more established and better-connected firms in the economic core of the country, excluding smaller firms in Tanga in the process.

3 Post-Research Events and Limitations of this Thesis

It is important to note, that since my time in Tanzania, there has been serious developments in the Tanzanian hydrocarbon sector regarding its future. This has been particularly applicable to chapter seven of this thesis, which focused on the temporalities of local content on the EACOP project. The highlighting the spatial and temporal effects local content policies have exhibited in the backdrop of a temporary project that was (supposedly) to be completed by 2020 has come undone through events outside of the country. At the time, these urgencies were very real, with the expectation that construction would occur in 2019 and 2020.

Since the 4th of September 2019, all technical work on the EACOP project has been suspended, leading to questions of the viability of the project altogether. This is less to do with the technical side of the project itself, but rather issues in the Ugandan upstream sector over the farming down of a stake in the industry between Tullow Oil and Total (Reuters, 2019a). In April 2020, Tullow oil, one of the IOCs operating in Uganda, has announced that it has sold its entire stake in Lake Albert to Total (Tullow Oil, 2020), meaning that only Total and CNOOC are currently participating in the Ugandan sector, with Total having a sizable amount of control. Considering previous selling of assets have brought tax issues between the IOCs and the Government of Uganda, such issues could arise again and cause further delays.

For EACOP, there are serious domestic blocks to the project progressing; the HGA between both Uganda and Tanzania with IOCs have yet to conclude. While the cause of the suspension was outside of the Tanzanian government's control, there were other factors that had yet to be passed. The ESIA on the Ugandan portion of the pipeline has not been well

received, with Ugandan NGOs criticising the report for legal and methodological issues (Observer, 2019b; Daily Monitor, 2019). The Tanzanian portion of the ESIA has been made public, but after the announcement of the suspension of the project (EACOP, 2020b). The fallout of this for local content is that all tenders on the project have also been suspended. For many businesses in Tanzania who had planned to participate in the project, the preparation and urgency generated at the peak of interest in 2017 and 2018 has come to naught. In this respect, EACOP highlights how local content policies and preparation are still at the mercy of wider factors in the context of nascent extractive industries and their associated infrastructures.

There have also been changes to the actors participating in the sector and proposed infrastructure plans. This is seen with ExxonMobil looking to sell their stake in Block 2, and focus efforts in neighbouring Mozambique (Reuters, 2018a). While they have looked to sell the block, there has been no offers yet from other IOCs, most likely in part due to the resource legislation in 2017. The slow exit of one of the largest IOCs in the world has further signalled that the Tanzanian gas sector is underwhelming in short and medium term, and IOCs are focusing efforts both on more established markets and in markets where further progression has been made. This is combined with a schism in the LNG group between Equinor and Shell, with the former looking to build a smaller LNG to ensure faster construction and production. Alongside ExxonMobil attempting to leave Tanzania, Ophir energy has been acquired by the Indonesian firm MedcoEnergi, and it is currently unknown how this would affect Ophir's projects in the Tanzanian deep-sea.

The global COVID-19 epidemic has also had massive shifts to the global hydrocarbon sector. Declining hydrocarbon prices have impacted the largest IOCs and oil-producing states, and questions remain over the long-term impact the global pandemic will have on the extractives sector (Albulescu, 2020; for mining, see Laing, 2020b). Despite these drops in prices, discussions over the LNG plant are set to resume in January 2021 (East African, 2020), and the government has hinted to drop its opposition to international arbitration (Schaafsma and Wood, 2020). A combination of factors, ranging from market and price changes, to the re-election of Magufuli, may signal a change in course. Alternatively, such declarations of resumed talks have been common since 2015, and this announcement could be a similar situation whereby talks are ongoing but little progress is made.

Alongside the hydrocarbon events above, new political policies may shift people's perceptions of the government. In Mtwara, after my visit to the region, Magufuli announced

that the government would purchase cashew nuts at a higher rate than private buyers were offering (BBC, 2018). Such a policy has proven to be popular with cashew nut farmers at the time, but soon proved contentious (Citizen, 2018c). Therefore, it could be speculated that the opinions from the people of Mtwara on the government may have been different than what they have told me at the time of interview. Furthermore, the validity of the re-election of Magufuli, who won in a supposed landside, has been questioned by international actors.

These recent events, occurring after fieldwork had been completed, both highlight the limitations and support the findings of this research. This research is but a snapshot in time, and as demonstrated in the thesis, temporalities are fluid and evolve because of events at all spatial levels. There are also methodological issues to consider. First of all, no data was collected on the gas extracted on the Songo-Songo, so this thesis is not a complete picture of the whole hydrocarbon sector in the country. This was in part due to time limits during my fieldwork in Tanzania, but it was also accessibility limits; Songo-Songo is a chain of islands away from the Tanzanian mainland, with the nearest region the sparsely populated Lindi. This is in comparison to Mnazi bay, which is connected to mainland Tanzania and near the city of Mtwara, the largest city in southern Tanzania. Alongside this, as mentioned before, this thesis does not proclaim to have explored all temporalities in the sector and has some considerable exclusions. One such example of what this thesis does not include is a discussion or analysis of how extraction may alter the temporalities of environmental and climate change on local, national, or global actors.

4 Conclusion

This thesis has sought to explore how temporalities have interacted with the geographies and governance of extraction. To do so, it has explored how actors on different spatial scales have interacted with one another, and how the temporalities of extraction have guided actions of stakeholders involved in the sector. The different results presented throughout the thesis are not a complete list of the temporalities of the sector in Tanzania, rather they highlight the importance of including temporality in future scholarly research on the impacts the hydrocarbon and wider extractives sector, has on politics and society.

With the temporalities of the sector being multifaceted, their impacts are equally so, and have been dependent on a variety of differing factors. One of the guiding temporalities for the Tanzanian state has been an imagined future whereby gas plays a direct role in the industrialisation of the country. This was shaped both by the developmentalist agenda and

the materiality of the gas. This imagined future has directly influenced both the social and legal aspects of resource nationalism.

This resource nationalism has created friction, both between the government and IOCs, and the government and local communities. For the former, this has chiefly been in the form of legal changes, whereby the government has sought to ensure that the mistakes of the past cannot be repeated again. Legal mechanisms have been put in place to correct any mistakes and take advantages of the cyclical nature of commodity prices. Yet these frictions have slowed down the sector and has led to some IOCs questioning the economic viability of the deep-sea gas.

For the latter, Tanzania's nationalist agenda, one of which has sought to not differentiate people and regions, has paradoxically exacerbated regional frustrations and tensions between the core and the periphery. For both Mtwara and Tanga, this in theory is amicable, but in practise this has further fractured national unity. Furthermore, its goal for wider national economic development has rung hollow for communities close to the project or extraction site when the perceived chief benefactor has been the economic core of the country.

The nature of these projects has also led to different perceptions of time, and therefore different actions. The introduction of the onshore and offshore sector initially provided a boost for the regional economy of Mtwara, and a change in the perceptions of the region. These perceptions dissipated with the announcement of the Mtwara-Dar es Salaam pipeline. Conversely, the EACOP project has promised greater opportunities for participation in the sector, and the short timeframe led to quick actions by well-connected businesses in the economic core of the country, shutting out potential smaller competitors located near the pipeline in the process. The LNG project, on the other hand, has not been progressing at the rate it was predicted to, in part due to the lack of synchronicity of the IOCs and the government.

Guiding these investments has been the commodity cycle, which has dictated investment actions of IOCs. High prices allowed for exploration in Tanzania, reterritorializing East Africa into a hydrocarbon frontier in the process. Yet these prices did not last. The falling commodity prices, and legal changes in the sector, has made Tanzania less of an attractive investment destination than a decade ago. Continued changes in the market and technological advancement may further hinder offshore extraction and throw a lot of the government's plans for the sector in disarray.

In conclusion, this thesis has argued that the temporalities of the gas sector have created differing perceptions of time and temporality across different actors at different spatial scales. The potential for hydrocarbon revenues and wider economic development has been promised at the short, medium, and long term, influenced direct stakeholders' actions. The result of this has been predominately friction between the local and the national, and the national and international. As long as these frictions persist alongside the changing gas market, questions will remain over the future of the sector.

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[287] Not affiliated with the British Newspaper, *The Guardian.*
[288] Not affiliated with the British Newspaper, *The Independent.*
[289] Not affiliated with the British Newspaper, *The Observer*

Appendixes

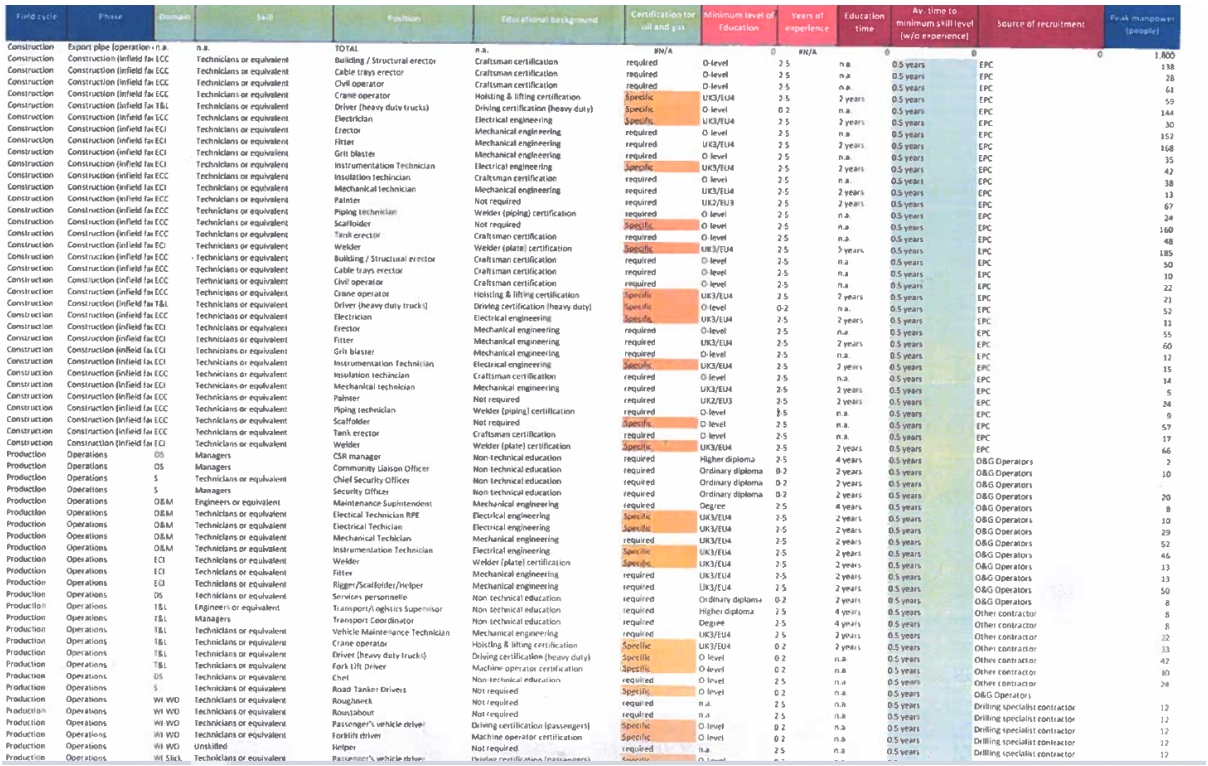
1 Appendix A: List of People Interviewed

Footnote Title	Interview Type	Numerical Value in Footnote	Organisation (if applicable)	Location of Interview	Gender	Tanzanian National?	Date
Businessperson	Single	2	Shop Owner	Mtwara	M	Yes	02.07.2018
Businessperson	Single	N/A	Tanga Chamber of Commerce	Tanga	M	Yes	07.08.2018
Businessperson	Single	5	Construction Services	Tanga	M	Yes	14.08.2018
Businessperson	Single	4	Medical Supply Services	Tanga	M	Yes	18.08.2018
Businessperson	Single	1	Shopkeeper	Mtwara	F	Yes	24.07.2018
Businessperson	Single	3	IOC Services Supplier	Dar es Salaam	M	No	31.01.2018
Cashew Farmer	Single	1	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	2	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	3	N/A	Mtwara	M	Yes	23.07.2018
Cashew Farmer	Single	4	N/A	Mtwara	M	Yes	23.07.2018
CCM MP	Single	N/A	CCM	Dar es Salaam	M	Yes	16.02.2018
CCM Regional Party Administrator	Single	N/A	CCM	Mtwara	M	Yes	13.07.2018
Chongoleani Village	Group	1	N/A	Tanga	Mx3, Fx3	Yes	18.09.2018
Chongoleani Village	Group	2	N/A	Tanga	Mx3, Fx3	Yes	19.09.2018
CUF MP	Single	N/A	CUF	Dar es Salaam	M	Yes	14.03.2018
Diplomat	Single	N/A	Ugandan Ministry of Foreign Affairs	Dar es Salaam	M	No	15.03.2018
Dockworker	Single	1	Mtwara Port	Dar es Salaam	M	Yes	18.02.2018
Dockworker	Single	2	Mtwara Port	Mtwara	M	Yes	20.07.2018
IOC Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	No	12.03.2018
East African Foreign Ministry Employees	Group	N/A	Ministry of Foreign Affairs and East African Cooperation	Dodoma	Mx3	Yes	06.03.2018
Economic Planner	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	09.07.2018
Engineer	Single	2	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	02.03.2018
Engineer	Single	1	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	22.02.2018
Engineer	Single	3	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	28.06.2018
Environmental and Social Consultant	Single	N/A	Independent Consultant	Dar es Salaam	M	No	09.08.2017
Fisherman	Single	1	N/A	Mtwara	M	Yes	24.07.2018
Fisherman	Single	2	N/A	Mtwara	M	Yes	24.07.2018
Former IOC Driver	Single	N/A	N/A	Mtwara	M	Yes	12.07.2018
Former IOC Yard Worker	Single	N/A	N/A	Mtwara	M	Yes	10.07.2018
Gas Technician	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	09.07.2018
Businessperson	Single	N/A	Mtwara Chamber of Commerce	Mtwara	M	Yes	10.07.2018

IOC Executives	Group	N/A	Hidden to Preserve Anonymity	Dar es Salaam	Mx1, Fx2	Mixed	14.03.2018
IOC Executives	Group	N/A	Hidden to Preserve Anonymity	Dar es Salaam	Mx2	Mixed	28.03.2018
Lawyer	Single	N/A	Independent IOC Lawyer	Dar es Salaam	M	Yes	18.03.2018
Lawyer	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	19.03.2018
Lawyer	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	21.11.2017
Local Content Director	Single	N/A	Hidden to Preserve Anonymity	Mtwara	M	Yes	13.07.2018
Madimba Village	Group	N/A	N/A	Mtwara	Mx2, Fx4	Yes	12.07.2018
Managing Director	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	26.03.2018
State Auditor	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	01.02.2018
Msimbati Villagers	Group	N/A	N/A	Mtwara	Mx3, Fx4	Yes	18.07.2018
Mtwara City	Group	N/A	N/A	Mtwara	Mx4	Yes	07.07.2018
Mtwara Market Association	Group	N/A	Mtwara Market	Mtwara	M	Yes	13.07.2018
Mtwara Poverty Reduction NGO Employee	Single	1	Mtwara Poverty Reduction NGO	Mtwara	M	Yes	14.07.2018
Mtwara Poverty Reduction NGO Employee	Single	2	Mtwara Poverty Reduction NGO	Mtwara	F	Yes	15.07.2018
Mtwara Poverty Reduction NGO Employee	Single	3	Mtwara Poverty Reduction NGO	Mtwara	M	Yes	17.07.2018
Mtwara Poverty Reduction NGO Group	Group	N/A	Mtwara Poverty Reduction NGO (Group)	Mtwara	Mx4, Fx3	Yes	11.07.2018
Mtwara Resident	Single	N/A	N/A	Mtwara	M	Yes	10.07.2018
NAF Hotel Manager	Single	N/A	NAF Hotel	Mtwara	M	Yes	02.07.2018
Local Content Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	F	Yes	18.04.2018
NGO Executive	Single	N/A	Environmental and Social NGO	Tanga	M	Yes	07.08.2018
Oil and Gas Bank Executives	Group	N/A	Stanbic Bank	Dar es Salaam	Mx2	Yes	22.02.2018
Planning Officer	Single	N/A	TPDC	Dar es Salaam	M	Yes	28.02.2018
Project Coordinator	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	27.11.2017
State Local Content Coordinator	Single	2	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	18.03.2018
Retired Senior TPDC Executive	Single	N/A	TPDC	Dar es Salaam	M	Yes	15.03.2018
Ruvura Village	Group	N/A	N/A	Mtwara	Mx1, Fx5	Yes	05.07.2018
Senior Engineer	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	24.11.2017
IOC Senior Executive 1	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	04.12.2017
Business Senior Executive	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	F	Yes	05.12.2017
IOC Senior Executive 2	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	No	12.03.2018
IOC Senior Executive 3	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	13.02.2018
IOC Senior Executive 4	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	No	14.03.2018
State Senior Executive 1	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	21.03.2018
State Senior Executive 2	Single	N/A	Hidden to Preserve Anonymity	Dar es Salaam	M	Yes	28.03.2018

Senior Mtwara Local Government Officer	Single	N/A	Mtwara Municipality	Mtwara	M	Yes	26.07.2018
Tiffany Diamond Hotel Manager	Single	N/A	Tiffany Diamond Hotel	Mtwara	M	Yes	18.07.2018
State Local Content Coordinators	Group	N/A	TPDC	Dar es Salaam	Mx3	Yes	22.03.2018
State Geologists	Group	N/A	TPDC	Dar es Salaam	Mx3	Yes	03.02.2018
Well Manager	Single	N/A	Hidden to Preserve Anonymity	Mtwara	M	Yes	17.07.2018

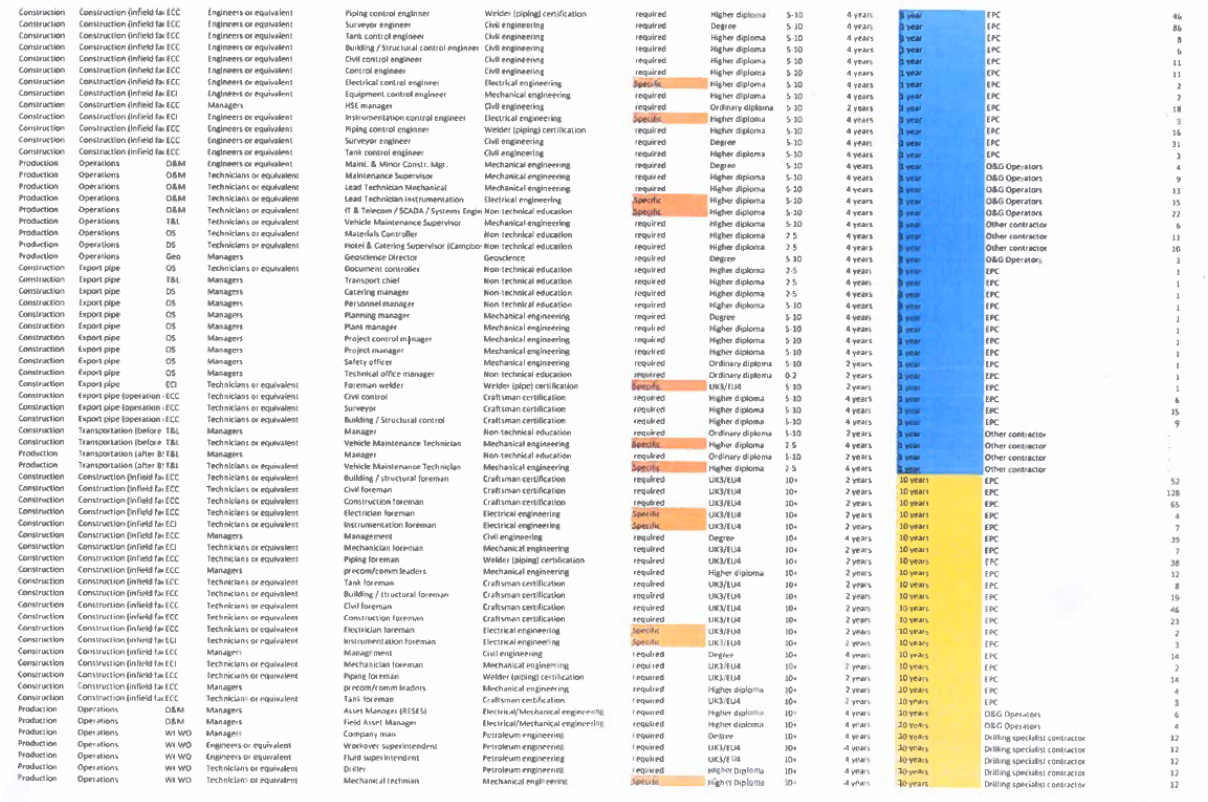
2 Appendix B: EACOP Job Document



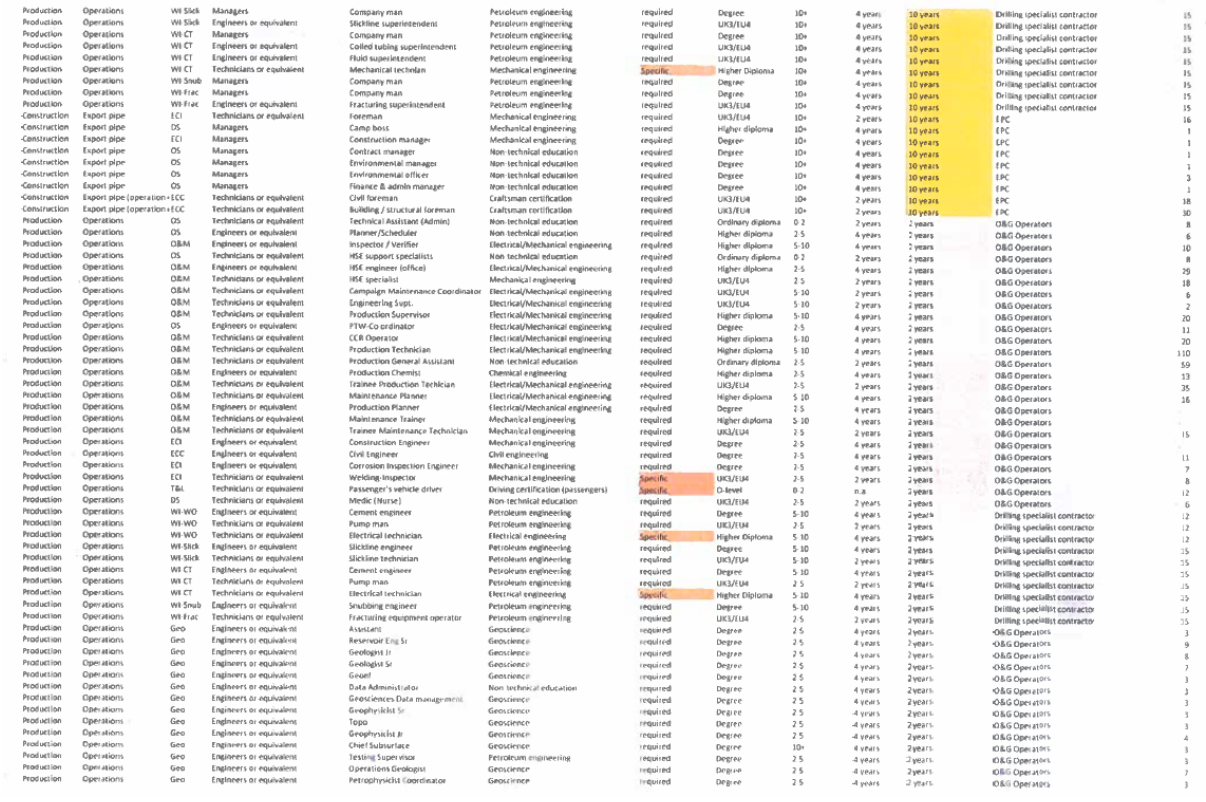
Field cycle	Phase	Domain	Skill	Position	Educational background	Certification for oil and gas	Minimum level of Education	Years of experience	Education time	Av. time to minimum skill level (w/o experience)	Source of recruitment	Peak manpower (people)
Construction	Export pipe (operation	n.a.	n.a.	TOTAL	n.a.	#N/A	0	#N/A		0	0	1,800
Construction	Construction (infield fax	ECC	Technicians or equivalent	Building / Structural erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	138
Construction	Construction (infield fax	ECC	Technicians or equivalent	Cable trays erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	28
Construction	Construction (infield fax	ECC	Technicians or equivalent	Civil operator	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	63
Construction	Construction (infield fax	ECC	Technicians or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	59
Construction	Construction (infield fax	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	144
Construction	Construction (infield fax	ECC	Technicians or equivalent	Electrician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	30
Construction	Construction (infield fax	ECI	Technicians or equivalent	Erector	Mechanical engineering	required	O-level	2-5	n.a.	0.5 years	EPC	152
Construction	Construction (infield fax	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	168
Construction	Construction (infield fax	ECI	Technicians or equivalent	Grit blaster	Mechanical engineering	required	O-level	2-5	n.a.	0.5 years	EPC	35
Construction	Construction (infield fax	ECI	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	42
Construction	Construction (infield fax	ECC	Technicians or equivalent	Insulation technician	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	38
Construction	Construction (infield fax	ECI	Technicians or equivalent	Mechanical technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	13
Construction	Construction (infield fax	ECC	Technicians or equivalent	Painter	Not required	required	UK2/EU3	2-5	2 years	0.5 years	EPC	67
Construction	Construction (infield fax	ECC	Technicians or equivalent	Piping technician	Welder (piping) certification	required	O-level	2-5	n.a.	0.5 years	EPC	24
Construction	Construction (infield fax	ECC	Technicians or equivalent	Scaffolder	Not required	Specific	O-level	2-5	n.a	0.5 years	EPC	160
Construction	Construction (infield fax	ECC	Technicians or equivalent	Tank erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	48
Construction	Construction (infield fax	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	185
Construction	Construction (infield fax	ECC	Technicians or equivalent	Building / Structural erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	50
Construction	Construction (infield fax	ECC	Technicians or equivalent	Cable trays erector	Craftsman certification	required	O-level	2-5	n.a	0.5 years	EPC	10
Construction	Construction (infield fax	ECC	Technicians or equivalent	Civil operator	Craftsman certification	required	O-level	2-5	n.a	0.5 years	EPC	22
Construction	Construction (infield fax	ECC	Technicians or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	21
Construction	Construction (infield fax	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	52
Construction	Construction (infield fax	ECC	Technicians or equivalent	Electrician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	11
Construction	Construction (infield fax	ECI	Technicians or equivalent	Erector	Mechanical engineering	required	O-level	2-5	n.a	0.5 years	EPC	55
Construction	Construction (infield fax	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	60
Construction	Construction (infield fax	ECI	Technicians or equivalent	Grit blaster	Mechanical engineering	required	O-level	2-5	n.a.	0.5 years	EPC	12
Construction	Construction (infield fax	ECI	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	15
Construction	Construction (infield fax	ECC	Technicians or equivalent	Insulation technician	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	14
Construction	Construction (infield fax	ECI	Technicians or equivalent	Mechanical technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	5
Construction	Construction (infield fax	ECC	Technicians or equivalent	Painter	Not required	required	UK2/EU3	2-5	2 years	0.5 years	EPC	24
Construction	Construction (infield fax	ECC	Technicians or equivalent	Piping technician	Welder (piping) certification	required	O-level	2-5	n.a.	0.5 years	EPC	9
Construction	Construction (infield fax	ECC	Technicians or equivalent	Scaffolder	Not required	Specific	O-level	2-5	n.a.	0.5 years	EPC	57
Construction	Construction (infield fax	ECC	Technicians or equivalent	Tank erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	17
Construction	Construction (infield fax	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	66
Production	Operations	OS	Managers	CSR manager	Non-technical education	required	Higher diploma	2-5	4 years	0.5 years	O&G Operators	2
Production	Operations	OS	Managers	Community Liaison Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	10
Production	Operations	S	Technicians or equivalent	Chief Security Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	
Production	Operations	S	Managers	Security Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	20
Production	Operations	O&M	Engineers or equivalent	Maintenance Superintendent	Mechanical engineering	required	Degree	2-5	4 years	0.5 years	O&G Operators	8
Production	Operations	O&M	Technicians or equivalent	Electrical Technician RPE	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	10
Production	Operations	O&M	Technicians or equivalent	Electrical Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	29
Production	Operations	O&M	Technicians or equivalent	Mechanical Technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	52
Production	Operations	O&M	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	46
Production	Operations	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	13
Production	Operations	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	13
Production	Operations	ECI	Technicians or equivalent	Rigger/Scaffolder/Helper	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	50
Production	Operations	OS	Technicians or equivalent	Services personnelle	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	8
Production	Operations	T&L	Engineers or equivalent	Transport/Logistics Supervisor	Non-technical education	required	Higher diploma	2-5	4 years	0.5 years	Other contractor	8
Production	Operations	T&L	Managers	Transport Coordinator	Non-technical education	required	Degree	2-5	4 years	0.5 years	Other contractor	8
Production	Operations	T&L	Technicians or equivalent	Vehicle Maintenance Technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	Other contractor	22
Production	Operations	T&L	Technicians or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	0-2	2 years	0.5 years	Other contractor	33
Production	Operations	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	Other contractor	42
Production	Operations	T&L	Technicians or equivalent	Fork Lift Driver	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Other contractor	10
Production	Operations	OS	Technicians or equivalent	Chef	Non-technical education	required	O-level	2-5	n.a	0.5 years	Other contractor	24
Production	Operations	S	Technicians or equivalent	Road Tanker Drivers	Not required	Specific	O-level	0-2	n.a	0.5 years	O&G Operators	
Production	Operations	WI WD	Technicians or equivalent	Roughneck	Not required	required	n.a.	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WD	Technicians or equivalent	Roustabout	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WD	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WD	Technicians or equivalent	Forklift driver	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WD	Unskilled	Helper	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI Slick	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	12

Field cycle	Phase	Domain	Skill	Position	Educational background	Certification for oil and gas	Minimum level of education	Years of experience	Education time	Av. time to minimum skill level (w/o experience)	Source of recruitment	Peak manpower (people)
Construction	Export pipe (operation	n.a.	n.a.	TOTAL	n.a.	#N/A		0	#N/A	0	0	0 1,800
Construction	Construction (infield fac	ECC	Technician or equivalent	Building / Structural erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	138
Construction	Construction (infield fac	ECC	Technician or equivalent	Cable trays erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	28
Construction	Construction (infield fac	ECC	Technician or equivalent	Civil operator	Craftsman certification	required	O-level	2-5	n.a	0.5 years	EPC	61
Construction	Construction (infield fac	ECC	Technician or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	59
Construction	Construction (infield fac	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	144
Construction	Construction (infield fac	ECC	Technicians or equivalent	Electrician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	30
Construction	Construction (infield fac	ECI	Technicians or equivalent	Erector	Mechanical engineering	required	O-level	2-5	n.a	0.5 years	EPC	152
Construction	Construction (infield fac	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	168
Construction	Construction (infield fac	ECI	Technicians or equivalent	Grit blaster	Mechanical engineering	required	O-level	2-5	n.a	0.5 years	EPC	35
Construction	Construction (infield fac	ECI	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	42
Construction	Construction (infield fac	ECC	Technicians or equivalent	Insulation technician	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	38
Construction	Construction (infield fac	ECI	Technicians or equivalent	Mechanical technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	13
Construction	Construction (infield fac	ECC	Technicians or equivalent	Painter	Not required	required	UK2/EU3	2-5	2 years	0.5 years	EPC	67
Construction	Construction (infield fac	ECC	Technicians or equivalent	Piping technician	Welder (piping) certification	required	O-level	2-5	n.a.	0.5 years	EPC	24
Construction	Construction (infield fac	ECC	Technicians or equivalent	Scaffolder	Not required	Specific	O-level	2-5	n.a.	0.5 years	EPC	160
Construction	Construction (infield fac	ECC	Technicians or equivalent	Tank erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	48
Construction	Construction (infield fac	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	185
Construction	Construction (infield fac	ECC	Technicians or equivalent	Building / Structural erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	50
Construction	Construction (infield fac	ECC	Technicians or equivalent	Cable trays erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	10
Construction	Construction (infield fac	ECC	Technicians or equivalent	Civil operator	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	22
Construction	Construction (infield fac	ECC	Technicians or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	21
Construction	Construction (infield fac	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	52
Construction	Construction (infield fac	ECC	Technicians or equivalent	Electrician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	11
Construction	Construction (infield fac	ECI	Technicians or equivalent	Erector	Mechanical engineering	required	O-level	2-5	n.a.	0.5 years	EPC	55
Construction	Construction (infield fac	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	60
Construction	Construction (infield fac	ECI	Technicians or equivalent	Grit blaster	Mechanical engineering	required	O-level	2-5	n.a.	0.5 years	EPC	12
Construction	Construction (infield fac	ECI	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	15
Construction	Construction (infield fac	ECC	Technicians or equivalent	Insulation technician	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	14
Construction	Construction (infield fac	ECI	Technicians or equivalent	Mechanical technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	5
Construction	Construction (infield fac	ECC	Technicians or equivalent	Painter	Not required	required	UK2/EU3	2-5	2 years	0.5 years	EPC	24
Construction	Construction (infield fac	ECC	Technicians or equivalent	Piping technician	Welder (piping) certification	required	O-level	2-5	n.a.	0.5 years	EPC	9
Construction	Construction (infield fac	ECC	Technicians or equivalent	Scaffolder	Not required	Specific	O-level	2-5	n.a.	0.5 years	EPC	57
Construction	Construction (infield fac	ECC	Technicians or equivalent	Tank erector	Craftsman certification	required	O-level	2-5	n.a.	0.5 years	EPC	17
Construction	Construction (infield fac	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	66
Production	Operations	OS	Managers	CSR manager	Non-technical education	required	Higher diploma	2-5	4 years	0.5 years	O&G Operators	2
Production	Operations	OS	Managers	Community Liaison Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	10
Production	Operations	S	Technicians or equivalent	Chief Security Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	
Production	Operations	S	Managers	Security Officer	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	20
Production	Operations	O&M	Engineers or equivalent	Maintenance Superintendent	Mechanical engineering	required	Degree	2-5	4 years	0.5 years	O&G Operators	8
Production	Operations	O&M	Technicians or equivalent	Electical Technician RPE	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	30
Production	Operations	O&M	Technicians or equivalent	Electrical Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	29
Production	Operations	O&M	Technicians or equivalent	Mechanical Technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	52
Production	Operations	O&M	Technicians or equivalent	Instrumentation Technician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	46
Production	Operations	ECI	Technicians or equivalent	Welder	Welder (plate) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	33
Production	Operations	ECI	Technicians or equivalent	Fitter	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	33
Production	Operations	DS	Technicians or equivalent	Rigger/Scaffolder/Helper	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	O&G Operators	50
Production	Operations	T&L	Engineers or equivalent	Services personnelle	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	O&G Operators	8
Production	Operations	T&L	Managers	Transport Coordinator	Non-technical education	required	Higher diploma	2-5	4 years	0.5 years	Other contractor	8
Production	Operations	T&L	Technicians or equivalent	Vehicle Maintenance Technician	Non-technical education	required	Degree	2-5	4 years	0.5 years	Other contractor	8
Production	Operations	T&L	Technicians or equivalent	Crane operator	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	Other contractor	22
Production	Operations	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Holding & lifting certification	Specific	UK3/EU4	0-2	2 years	0.5 years	Other contractor	33
Production	Operations	T&L	Technicians or equivalent	Fork Lift Driver	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	Other contractor	47
Production	Operations	DS	Technicians or equivalent	Chef	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Other contractor	10
Production	Operations	S	Technicians or equivalent	Road Tanker Drivers	Non-technical education	required	O-level	2-5	n.a	0.5 years	Other contractor	24
Production	Operations	WI WO	Technicians or equivalent	Roughneck	Not required	Specific	O-level	0-2	n.a	0.5 years	O&G Operators	
Production	Operations	WI WO	Technicians or equivalent	Roustabout	Not required	required	n.a.	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WO	Technicians or equivalent	Passenger's vehicle driver	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WO	Technicians or equivalent	Forklift driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI WO	Unskilled	Helper	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI Slick	Technicians or equivalent	Passenger's vehicle driver	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	12
Production	Operations	WI Slick	Unskilled	Helper	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	15
					Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	15

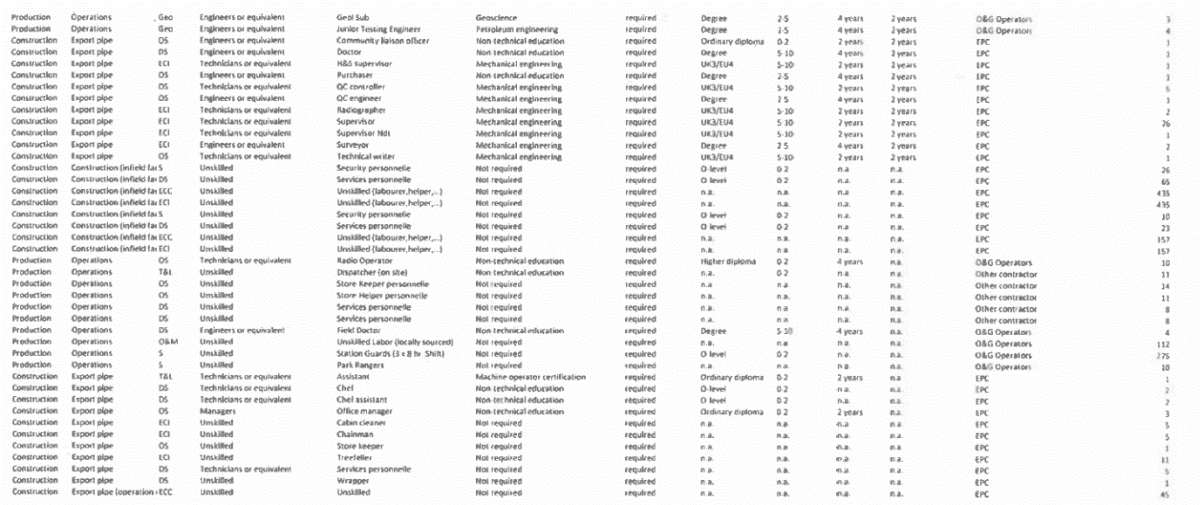
Production	Operations	WI CT	Technicians or equivalent	Forklift driver	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	15
Production	Operations	WI CT	Unskilled	Helper	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	15
Production	Operations	WI Snub	Technicians or equivalent	Roustabout	Not required	required	n.a	2-5	n.a	0.5 years	Drilling specialist contractor	15
Production	Operations	WI Snub	Technicians or equivalent	Forklift driver	Machine operator certification	Specific	O-level	0-2	n.a	0.5 years	Drilling specialist contractor	15
Production	Operations	WI Frac	Technicians or equivalent	Roustabout	Not required	required	n.a.	2-5	n.a	0.5 years	Drilling specialist contractor	15
Construction	Export pipe	T&L	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	EPC	1
Construction	Export pipe	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a	0.5 years	EPC	17
Construction	Export pipe	T&L	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	EPC	1
Construction	Export pipe	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	17
Construction	Export pipe	T&L	Technicians or equivalent	Bending machine operator	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	T&L	Technicians or equivalent	C.A.D Operator	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	T&L	Technicians or equivalent	Operator	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	11
Construction	Export pipe	T&L	Technicians or equivalent	Operator backoe	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	9
Construction	Export pipe	T&L	Technicians or equivalent	Crane operator	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	3
Construction	Export pipe	T&L	Technicians or equivalent	Operator dozer	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	6
Construction	Export pipe	T&L	Technicians or equivalent	Operator grader	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	2
Construction	Export pipe	T&L	Technicians or equivalent	Operator loader	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	2
Construction	Export pipe	T&L	Technicians or equivalent	Operator sideboom	Machine operator certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	8
Construction	Export pipe	ECC	Technicians or equivalent	Carpenter	Craftsman certification	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	OS	Technicians or equivalent	Clerk	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	EPC	3
Construction	Export pipe	ECI	Technicians or equivalent	Electrician	Electrical engineering	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	3
Construction	Export pipe	DS	Technicians or equivalent	Medic (Nurse)	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Greaseman	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	OS	Engineers or equivalent	IT manager assistant	Non-technical education	required	UK3/EU4	0-2	4 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Mechanic	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	6
Construction	Export pipe	ECC	Technicians or equivalent	Painter	Craftsman certification	required	UK2/EU3	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	ECC	Technicians or equivalent	Plumber	Craftsman certification	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	OS	Technicians or equivalent	Purchaser assistant	Non-technical education	required	Higher diploma	0-2	4 years	0.5 years	EPC	1
Construction	Export pipe	OS	Technicians or equivalent	Reporting assistant	Non-technical education	required	Higher diploma	0-2	4 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Sand blaster	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	2
Construction	Export pipe	OS	Technicians or equivalent	Secretary	Non-technical education	required	Ordinary diploma	0-2	2 years	0.5 years	EPC	4
Construction	Export pipe	ECI	Technicians or equivalent	Spacer	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	2
Construction	Export pipe	ECI	Technicians or equivalent	Technician welding	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Technician darkroom	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Technician induction heating	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Technician test	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	5
Construction	Export pipe	OS	Technicians or equivalent	Receptionist	Non-technical education	required	Ordinary diploma	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	OS	Managers	Account chief	Non-technical education	required	Ordinary diploma	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Engineers or equivalent	Bending engineer	Mechanical engineering	required	Degree	2-5	4 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Technicians or equivalent	Engineer test	Mechanical engineering	required	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe	OS	Managers	H&S manager	Mechanical engineering	required	Higher diploma	2-5	4 years	0.5 years	EPC	1
Construction	Export pipe	OS	Managers	H&S officer	Mechanical engineering	required	Higher diploma	2-5	4 years	0.5 years	EPC	3
Construction	Export pipe	T&L	Managers	Logistics manager	Non-technical education	required	Higher diploma	0-2	4 years	0.5 years	EPC	1
Construction	Export pipe	OS	Managers	QA/QC manager	Mechanical engineering	required	Degree	5-10	4 years	0.5 years	EPC	1
Construction	Export pipe	OS	Managers	Socio-economic officer	Non-technical education	required	Degree	5-10	4 years	0.5 years	EPC	1
Construction	Export pipe	ECI	Unskilled	Helper	Not required	required	n.a.	2-5	n.a	0.5 years	EPC	14
Construction	Export pipe	ECI	Unskilled	Labourer	Not required	required	n.a.	2-5	n.a	0.5 years	EPC	96
Construction	Export pipe	ECI	Technicians or equivalent	Mechanic helper	Not required	required	n.a.	2-5	n.a.	0.5 years	EPC	5
Construction	Export pipe	ECI	Technicians or equivalent	Welder all passes	Welder (pipe) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	14
Construction	Export pipe	ECI	Technicians or equivalent	Welding book	Welder (pipe) certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	1
Construction	Export pipe (operation	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	EPC	30
Construction	Export pipe (operation	ECC	Technicians or equivalent	Crane operator	Hoisting & lifting certification	Specific	UK3/EU4	2-5	2 years	0.5 years	EPC	21
Construction	Export pipe (operation	ECC	Technicians or equivalent	Building / Structural erector	Craftsman certification	required	O-level	2-5	n.a	0.5 years	EPC	84
Construction	Export pipe (operation	ECC	Technicians or equivalent	Scaffolder	Craftsman certification	Specific	O-level	2-5	n.a	0.5 years	EPC	47
Construction	Transportation (before	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a.	0.5 years	Other contractor	209
Construction	Transportation (before	T&L	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Other contractor	191
Construction	Transportation (before	T&L	Technicians or equivalent	Traffic coordinator	Non technical education	required	Ordinary diploma	0-2	2 years	0.5 years	Other contractor	118
Production	Transportation (after pi	T&L	Technicians or equivalent	Driver (heavy duty trucks)	Driving certification (heavy duty)	Specific	O-level	0-2	n.a	0.5 years	Other contractor	209
Production	Transportation (after pi	T&L	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	0.5 years	Other contractor	191
Production	Transportation (after pi	T&L	Technicians or equivalent	Traffic coordinator	Non technical education	required	Ordinary diploma	0-2	2 years	0.5 years	Other contractor	118
Construction	Construction (infield fac	ECC	Engineers or equivalent	Building / Structural control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC	18
Construction	Construction (infield fac	ECC	Engineers or equivalent	Civil control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC	30
Construction	Construction (infield fac	ECC	Engineers or equivalent	Control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC	31
Construction	Construction (infield fac	ECC	Engineers or equivalent	Electrical control engineer	Electrical engineering	Specific	Higher diploma	5-10	4 years	1 year	EPC	4
Construction	Construction (infield fac	ECI	Engineers or equivalent	Equipment control engineer	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	EPC	7
Construction	Construction (infield fac	ECC	Managers	HSE manager	Civil engineering	required	Ordinary diploma	5-10	2 years	0 year	EPC	53
Construction	Construction (infield fac	ECI	Engineers or equivalent	Instrumentation control engineer	Electrical engineering	Specific	Higher diploma	5-10	4 years	1 year	EPC	9



Construction	Construction (infield fa	ECC	Engineers or equivalent	Piping control engineer	Welder (piping) certification	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Surveyor engineer	Civil engineering	required	Degree	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Tank control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Building / Structural control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Civil control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Electrical control engineer	Electrical engineering	Specific	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECI	Engineers or equivalent	Equipment control engineer	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Managers	HSE manager	Civil engineering	required	Ordinary diploma	5-10	2 years	1 year	EPC
Construction	Construction (infield fa	ECI	Engineers or equivalent	Instrumentation control engineer	Electrical engineering	Specific	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Piping control engineer	Welder (piping) certification	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Surveyor engineer	Civil engineering	required	Degree	5-10	4 years	1 year	EPC
Construction	Construction (infield fa	ECC	Engineers or equivalent	Tank control engineer	Civil engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Production	Operations	O&M	Engineers or equivalent	Maint. & Minor Constr. Mgr.	Mechanical engineering	required	Degree	5-10	4 years	1 year	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Maintenance Supervisor	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Lead Technician Mechanical	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Lead Technician Instrumentation	Electrical engineering	Specific	Higher diploma	5-10	4 years	1 year	O&G Operators
Production	Operations	O&M	Technicians or equivalent	IT & Telecom / SCADA / Systems Engin	Non-technical education	Specific	Higher diploma	5-10	4 years	1 year	O&G Operators
Production	Operations	T&L	Technicians or equivalent	Vehicle Maintenance Supervisor	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	Other contractor
Production	Operations	OS	Technicians or equivalent	Materials Controller	Non-technical education	required	Higher diploma	2-5	4 years	1 year	Other contractor
Production	Operations	DS	Technicians or equivalent	Hotel & Catering Supervisor (Campbo	Non-technical education	required	Higher diploma	2-5	4 years	1 year	Other contractor
Production	Operations	Geo	Managers	Geoscience Director	Geoscience	required	Degree	5-10	4 years	1 year	O&G Operators
Construction	Export pipe	OS	Technicians or equivalent	Document controller	Non-technical education	required	Higher diploma	2-5	4 years	1 year	EPC
Construction	Export pipe	T&L	Managers	Transport chief	Non-technical education	required	Higher diploma	2-5	4 years	1 year	EPC
Construction	Export pipe	DS	Managers	Catering manager	Non-technical education	required	Higher diploma	2-5	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Personnel manager	Non-technical education	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Planning manager	Mechanical engineering	required	Degree	5-10	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Plant manager	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Project control manager	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Project manager	Mechanical engineering	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe	OS	Managers	Safety officer	Mechanical engineering	required	Ordinary diploma	5-10	2 years	1 year	EPC
Construction	Export pipe	OS	Managers	Technical office manager	Non-technical education	required	Ordinary diploma	0-2	2 years	1 year	EPC
Construction	Export pipe	ECI	Technicians or equivalent	Foreman welder	Welder (pipe) certification	Specific	UK3/EU4	5-10	2 years	1 year	EPC
Construction	Export pipe (operation s	ECC	Technicians or equivalent	Civil control	Craftsman certification	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe (operation s	ECC	Technicians or equivalent	Surveyor	Craftsman certification	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Export pipe (operation s	ECC	Technicians or equivalent	Building / Structural control	Craftsman certification	required	Higher diploma	5-10	4 years	1 year	EPC
Construction	Transportation (before	T&L	Managers	Manager	Non-technical education	required	Ordinary diploma	5-10	2 years	1 year	Other contractor
Construction	Transportation (before	T&L	Technicians or equivalent	Vehicle Maintenance Technician	Mechanical engineering	Specific	Higher diploma	2-5	4 years	1 year	Other contractor
Production	Transportation (after Bi	T&L	Managers	Manager	Non-technical education	required	Ordinary diploma	5-10	2 years	1 year	Other contractor
Production	Transportation (after Bi	T&L	Technicians or equivalent	Vehicle Maintenance Technician	Mechanical engineering	Specific	Higher diploma	2-5	4 years	1 year	Other contractor
Construction	Construction (infield fa	ECC	Technicians or equivalent	Building / structural foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Civil foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Construction foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Electricien foreman	Electrical engineering	Specific	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECI	Technicians or equivalent	Instrumentation foreman	Electrical engineering	Specific	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Managers	Management	Civil engineering	required	Degree	10+	4 years	10 years	EPC
Construction	Construction (infield fa	ECI	Technicians or equivalent	Mechanician foreman	Mechanical engineering	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Piping foreman	Welder (piping) certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Managers	precom/comm leaders	Mechanical engineering	required	Higher diploma	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Tank foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Building / structural foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Civil foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Construction foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Electrician foreman	Electrical engineering	Specific	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECI	Technicians or equivalent	Instrumentation foreman	Electrical engineering	Specific	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Managers	Management	Civil engineering	required	Degree	10+	4 years	10 years	EPC
Construction	Construction (infield fa	ECI	Technicians or equivalent	Mechanician foreman	Mechanical engineering	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Piping foreman	Welder (piping) certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Managers	precom/comm leaders	Mechanical engineering	required	Higher diploma	10+	2 years	10 years	EPC
Construction	Construction (infield fa	ECC	Technicians or equivalent	Tank foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Production	Operations	O&M	Managers	Asset Manager (BISES)	Electrical/Mechanical engineering	required	Higher diploma	10+	4 years	10 years	O&G Operators
Production	Operations	O&M	Managers	Field Asset Manager	Electrical/Mechanical engineering	required	Higher diploma	10+	4 years	10 years	O&G Operators
Production	Operations	WI WO	Managers	Company man	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI WO	Engineers or equivalent	Workover superintendent	Petroleum engineering	required	UK3/EU4	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI WO	Engineers or equivalent	Fluid superintendent	Petroleum engineering	required	UK3/EU4	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI WO	Technicians or equivalent	Driller	Petroleum engineering	required	Higher diploma	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI WO	Technicians or equivalent	Mechanical technian	Mechanical engineering	Specific	Higher diploma	10+	4 years	10 years	Drilling specialist contractor



Production	Operations	WI Slick	Managers	Company man	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI Slick	Engineers or equivalent	Slickline superintendent	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI CT	Managers	Company man	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI CT	Engineers or equivalent	Coiled tubing superintendent	Petroleum engineering	required	UK3/EU4	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI CT	Engineers or equivalent	Fluid superintendent	Petroleum engineering	required	UK3/EU4	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI CT	Technicians or equivalent	Mechanical technian	Mechanical engineering	Specific	Higher Diploma	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI Snub	Managers	Company man	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI Frac	Managers	Company man	Petroleum engineering	required	Degree	10+	4 years	10 years	Drilling specialist contractor
Production	Operations	WI Frac	Engineers or equivalent	Fracturing superintendent	Petroleum engineering	required	UK3/EU4	10+	4 years	10 years	Drilling specialist contractor
Construction	Export pipe	ECI	Technicians or equivalent	Foreman	Mechanical engineering	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Export pipe	DS	Managers	Camp boss	Mechanical engineering	required	Higher diploma	10+	4 years	10 years	EPC
Construction	Export pipe	ECI	Managers	Construction manager	Mechanical engineering	required	Degree	10+	4 years	10 years	EPC
Construction	Export pipe	OS	Managers	Contract manager	Non-technical education	required	Degree	10+	4 years	10 years	EPC
Construction	Export pipe	OS	Managers	Environmental manager	Non-technical education	required	Degree	10+	4 years	10 years	EPC
Construction	Export pipe	OS	Managers	Environmental officer	Non-technical education	required	Degree	10+	4 years	10 years	EPC
Construction	Export pipe	OS	Managers	Finance & admin manager	Non-technical education	required	Degree	10+	4 years	10 years	EPC
Construction	Export pipe (operation s	ECC	Technicians or equivalent	Civil foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Construction	Export pipe (operation s	ECC	Technicians or equivalent	Building / structural foreman	Craftsman certification	required	UK3/EU4	10+	2 years	10 years	EPC
Production	Operations	OS	Technicians or equivalent	Technical Assistant (Admin)	Non-technical education	required	Ordinary diploma	0-2	2 years	1 years	O&G Operators
Production	Operations	OS	Engineers or equivalent	Planner/Scheduler	Non-technical education	required	Higher diploma	2-5	4 years	1 years	O&G Operators
Production	Operations	O&M	Engineers or equivalent	Inspector / Verifier	Electrical/Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	OS	Technicians or equivalent	HSE support specialists	Non-technical education	required	Ordinary diploma	0-2	2 years	1 years	O&G Operators
Production	Operations	O&M	Engineers or equivalent	HSE engineer (office)	Electrical/Mechanical engineering	required	Higher diploma	2-5	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	HSE specialist	Mechanical engineering	required	UK3/EU4	2-5	2 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Campaign Maintenance Coordinator	Electrical/Mechanical engineering	required	UK3/EU4	5-10	2 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Engineering Supt.	Electrical/Mechanical engineering	required	UK3/EU4	5-10	2 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Production Supervisor	Electrical/Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	OS	Engineers or equivalent	PTW-Co ordinator	Electrical/Mechanical engineering	required	Degree	2-5	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	CCR Operator	Electrical/Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Production Technician	Electrical/Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Production General Assistant	Non-technical education	required	Ordinary diploma	2-5	2 years	1 years	O&G Operators
Production	Operations	O&M	Engineers or equivalent	Production Chemist	Chemical engineering	required	Higher diploma	2-5	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Trainee Production Technician	Electrical/Mechanical engineering	required	UK3/EU4	2-5	2 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Maintenance Planner	Electrical/Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	O&M	Engineers or equivalent	Production Planner	Electrical/Mechanical engineering	required	Degree	2-5	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Maintenance Trainer	Mechanical engineering	required	Higher diploma	5-10	4 years	1 years	O&G Operators
Production	Operations	O&M	Technicians or equivalent	Trainee Maintenance Technician	Mechanical engineering	required	UK3/EU4	2-5	2 years	1 years	O&G Operators
Production	Operations	ECI	Engineers or equivalent	Construction Engineer	Mechanical engineering	required	Degree	2-5	4 years	1 years	O&G Operators
Production	Operations	ECC	Engineers or equivalent	Civil Engineer	Civil engineering	required	Degree	2-5	4 years	1 years	O&G Operators
Production	Operations	ECI	Engineers or equivalent	Corrosion Inspection Engineer	Mechanical engineering	required	Degree	2-5	4 years	1 years	O&G Operators
Production	Operations	ECI	Technicians or equivalent	Welding-Inspector	Mechanical engineering	Specific	UK3/EU4	2-5	2 years	1 years	O&G Operators
Production	Operations	T&L	Technicians or equivalent	Passenger's vehicle driver	Driving certification (passengers)	Specific	O-level	0-2	n.a	1 years	O&G Operators
Production	Operations	DS	Technicians or equivalent	Medic (Nurse)	Non-technical education	required	UK3/EU4	2-5	2 years	1 years	O&G Operators
Production	Operations	WI-WO	Engineers or equivalent	Cement engineer	Petroleum engineering	required	Degree	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI-WO	Technicians or equivalent	Pump man	Petroleum engineering	required	UK3/EU4	2-5	2 years	1 years	Drilling specialist contractor
Production	Operations	WI-WO	Technicians or equivalent	Electrical technician	Electrical engineering	Specific	Higher Diploma	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI Slick	Engineers or equivalent	Slickline engineer	Petroleum engineering	required	Degree	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI Slick	Technicians or equivalent	Slickline technician	Petroleum engineering	required	UK3/EU4	5-10	2 years	1 years	Drilling specialist contractor
Production	Operations	WI CT	Engineers or equivalent	Cement engineer	Petroleum engineering	required	Degree	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI CT	Technicians or equivalent	Pump man	Petroleum engineering	required	UK3/EU4	2-5	2 years	1 years	Drilling specialist contractor
Production	Operations	WI CT	Technicians or equivalent	Electrical technician	Electrical engineering	Specific	Higher Diploma	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI Snub	Engineers or equivalent	Snubbing engineer	Petroleum engineering	required	Degree	5-10	4 years	1 years	Drilling specialist contractor
Production	Operations	WI Frac	Technicians or equivalent	Fracturing equipment operator	Petroleum engineering	required	UK3/EU4	2-5	2 years	1 years	Drilling specialist contractor
Production	Operations	Geo	Engineers or equivalent	Assistant	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Reservoir Eng Sr	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geologist Jr	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geologist Sr	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geoph	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Data Administrator	Non-technical education	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geosciences Data management	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geophysicist Sr	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Topo	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Geophysicist Jr	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Chief Subsurface	Geoscience	required	Degree	10+	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Testing Supervisor	Petroleum engineering	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Operations Geologist	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators
Production	Operations	Geo	Engineers or equivalent	Petrophysicist Coordinator	Geoscience	required	Degree	2-5	4 years	2 years	O&G Operators



3 Appendix C: Research Participation Consent Form

CONSENT TO PARTICPIATE IN RESEARCH: INTERVIEWS

Researcher: Aidan Barlow
Email: S1666073@sms.ed.ac.uk
Organisation: University of Edinburgh, Centre of African Studies

Position: PhD candidate

Research Topic:

These interviews will contribute to the formation of a PhD thesis that examines the connections between regional projects and processes, and national development strategies in the East African Hydrocarbon sector.

Expected Outputs:

This interview, alongside others, will contribute to the formation of a PhD thesis. Selected chapters of this thesis may contribute to a variety of academic publications, including books, academic journal articles and conference presentations.

Funding:

Travel expenses and this research are funded by the Economic and Social Research Council (ESRC). A research body funded by the UK government.

Procedure:

The participant will be asked a series of questions relating to their expertise or experience in the regional or national hydrocarbon sector in East Africa. The length of time this

interview will take will be roughly 30 minutes but may be less if the interviewee is under time constraints. With the interviewee's permission, the interview will be recorded. The purpose of the recording is to enable the most accurate record of the information is provided. The audio recording is for transcription purposes only. No external audience will hear the interview. Recordings can be paused at any time should the interviewee wish so. Any information provided off the record will not be used in publications. If the interviewee prefers not to be recorded, written notes shall be taken instead. If the respondent wishes to be interviewed in their local language, please note a translator will be present.

Post-Procedure: After the interview an email will be sent to the interviewee with the transcribed document of the interview. If there are any disagreements in the transcription, please feel free to contact the interviewer.

Risks and Benefits of being in this study:

There should be no risk for the participant in this study. All information provided during this interview will be kept secure and used only for this thesis. This thesis is hoped to provide practical, regional solutions currently facing the East African hydrocarbon industry.

Confidentiality:

Any recordings, written notes, transcriptions or written documentary evidence taken from this interview will not be shared with any third party without the permission of the interviewee. All such informational will be digitally stored on an encrypted storage device. If the results are published in the future, information and/or quotes from the interview may be used with permission granted by the interviewee (see part 3 of this document).

Compensation/Reimbursement:
You will be paid for your travel to the location of the meeting (if applicable), if meeting at a café, a drink will also be brought for you. No payment for an interview will occur in any circumstances.

3.1 Section two: Permissions and copyright

1. I confirm that I have read and understood this information sheet and have had the opportunity to ask questions.
   [ ]
2. I understand that my participation is voluntary and that I am free to withdraw at any time.
   [ ]
3. I agree to take part in the above study, and I assign the copyright in my contribution to the above project to Aidan Barlow
   [ ]

_____ _____ _____

Name Date Signature

3.2 section three: use of information in publications

Please tick box A, B, C or D and sign below

A	I permit use of my name with quotes and information gained from the interview(s) in subsequent publications.	
B	I permit the use of quotes and information gained from the interview(s) in subsequent publications on the condition that I am not personally identifiable.	
C	I permit use of my name with quotes and information gained from the interview(s) in subsequent publications, on the condition that I can check and either approve or disapprove any quotes or information attributed to me in advance of publication.	
D	The interview is to be conducted off the record and will not be referred to in subsequent publications.	

_____ _____ _____

Name of interviewee Date Signature

_____ _____ _____

Name of interviewer Date Signature